



EAZA Freshwater teleost TAG

Regional Collection Plan



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1st Edition

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Acknowledgements

This final report of the Regional Collection Plan for the EAZA Freshwater Teleost Taxon Advisory Group is the result of a collaboration of many people involved. This is a product of the EAZA Freshwater Teleost TAG, with input and support from the workshop participants and staff of the EAZA Executive Office. The EAZA Freshwater Teleost RCP workshop took place on 12 to 14 November 2019 in EAZA Executive Office, Amsterdam (The Netherlands) and was organised by the EAZA Freshwater Teleost TAG and the EAZA Executive Office.

Freshwater teleost TAG mission statement:

“To achieve conservation by managing freshwater teleost populations that mainly function as Ark or Rescue populations. A large number of freshwater fishes are threatened with extinction and several are already extinct in the wild. For many of these species *ex situ* populations can be maintained with relatively few resources and high chances of a successful reintroduction to the wild in the future. The EAZA community has the ability in many cases to rapidly respond to a changing situation in the wild and prevent extinction. “

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1. Introduction

Regional Collection Planning workshop for freshwater teleost

For a detailed description of the philosophy and outline of the new EAZA population management structure, its relatedness to the One Plan Approach (OPA) and the Integrated Collection Assessment and Planning (ICAP) process and the working procedures used to compile this edition of the EAZA Freshwater Teleost RCP please see [Appendix III](#) and [Appendix IV](#).

To appropriately reflect the current breadth of population management activities, the needs of EAZA members and the changes and opportunities within the conservation world at large, EAZA approved a new population management structure in April 2017, following a thorough and holistic evaluation of EAZA's former population management structures. The EAZA Freshwater Teleost Taxon Advisory Group (TAG) Regional Collection Plan (RCP) follows the framework of the new EAZA population management structure. A detailed description of the working procedures used for this edition of the EAZA Freshwater Teleost TAG RCP is found in [Appendix III](#) and [Appendix IV](#) of this document.

The Freshwater Teleost TAG is overseeing over 200 freshwater teleost families (more than 21,600 species). Given the number of families under consideration, this workshop focused on families in which at least one freshwater species had some level of threat, and had a geographic distribution in Europe, Middle East, Africa, South & Southeast Asia or Latin America. The TAG assumes that the AZA, JAZA, ZAA, and CAZG will oversee their regions. From a legal perspective, non-US based institutions are not allowed to work with species from USA. The TAG has regular contact with AZA and ZAA. Furthermore, families were only considered if at least some of the species were likely to benefit from *ex situ* management by the EAZA community and could be obtained and kept in aquariums. These factors automatically steered detailed evaluation towards small-bodied species that have life histories favourable to ex-situ management and for which reproduction in aquarium or pond conditions is possible. Many families contain species that undertake complex migratory patterns to complete reproduction that would be challenging or impossible to duplicate in an aquarium setting. Additionally there are families with many threatened species, for example salmonids, that receive considerable conservation attention and spending from outside of the zoo/aquarium community and these are therefore excluded from detailed evaluation and consideration. That left 84 families (more than 8,000 species) which have been included in this RCP and within those families, 30 have been assessed as EEPs at family level (see [table 1](#)). An EEP at family level oversees all species within the family, which can be many hundreds. Most of these species are just monitored, and only a selection is actively managed. The exact species within a family that are actively managed may be expanded upon over time and may be subject to change, since the situation of a species can change rapidly in the wild.

Whether a species is managed or not, in support of the TAG mission statement and in accordance with the Population Management Manual, all EAZA members are encouraged to

ensure that all freshwater teleosts in their collection should come from a trustworthy source (ideally captive bred) and accompanied by all relevant legislative paperwork; all animals leaving the collection should go to appropriate facilities with professional standards; and all animal transfers should conform to the international standards and national or international regulations applying to the species. Wild-sourcing, directly or via other facilities, should preferentially support certification schemes or *in situ* programmes where the supply of sustainably caught species provides livelihoods for local communities and is a conservation tool such as in case of rescuing operations backed by relevant authorities.

To get better insights in fish populations and to be able to properly manage fish species the TAG urges all EAZA members to improve on keeping records in ZIMS for the fish species in their collection.

2. Summary Table

During the RCP workshop different *ex situ* management strategies were proposed addressing specific threats relevant to the selected freshwater teleost families. The selected roles for the different proposed *ex situ* programmes aim at contributing in a quantifiable way to benefit the conservation of the families. Some of the potential roles, such as Insurance role, aims at maintaining a viable *ex situ* population to prevent extinction and preserve options for future conservation strategies. In the case of species that are extinct in the wild, the Ark role focuses on maintaining a long-term *ex situ* population and as a preparation for reintroduction or assisted colonisation if and when feasible.

The following table gives a concise overview on the outcome of the new RCP with some crucial background information and also an idea of the direction the respective *ex situ* population of a taxon has to develop to. Please see the relevant family sheet for a more extensive provision of information.

Table 1. Freshwater teleost summary tables

RCP Category: EEP		# Threatened species per IUCN Red List Status				#species assessed by IUCN	Roles identified	Category
		EW	CR	EN	VU			
Family	#species							
Adrianichthyidae - Ricefishes	37	-	5	4	1	36	Insurance	EEP
Alestidae - African tetras	119	-	1	4	9	108	Insurance	EEP
Aplocheilidae - Killifishes	14	-	-	5	2	14	Insurance	EEP
Atherinopsidae - Neotropical silversides	112	-	7	8	3	73	Insurance	EEP
Bedotiidae - Madagascar rainbowfishes	16	-	6	9	8	28	Insurance, Exhibit, Research	EEP+
Callichthyidae - Armoured catfishes	206	-	-	1	1	44	Insurance	EEP
Characidae - Characins	1135	-	3	3	13	244	Insurance, Monitoring, Research	EEP
Cichlidae - Cichlids	1713	-	118	62	94	1190	Insurance, Research	EEP
Cobitidae - Loaches	262	-	9	18	14	149	Insurance	EEP
Cyprinidae - Minnows or carps	3163	1	124	204	234	2158	Insurance	EEP
Cyprinodontidae (incl. Aphaniidae) - Pupfishes	137	3	9	17	18	78	Insurance/Ark, Research, Population restoration	EEP*
Distichodontidae - Distichodus	102	-	2	3	4	90	Insurance, Training	EEP

RCP Category: EEP

Family	#species	# Threatened species per IUCN Red List Status				#species assessed by IUCN	Roles identified	Category
		EW	CR	EN	VU			
Fundulidae - Topminnows and killifishes	44	-	2	3	3	41	Insurance, Lobby	EEP
Gasterosteidae - Sticklebacks and tubesnouts	18	-	1	1	1	17	Insurance	EEP
Goodeidae - Splitfins	51	2	14	14	6	41	Insurance/Ark, Population restoration, Research	EEP
Lebiasinidae - Pencilfishes	77	-	1	-	-	13	Insurance, Research	EEP
Melanotaeniidae - Rainbowfishes	95	-	2	1	9	36	Insurance	EEP+
Nemacheilidae -	696	-	17	29	44	298	Insurance, Research	EEP
Nothobranchiidae - African rivulines	273	-	5	31	36	206	Insurance, Exhibit	EEP
Osphronemidae - Gouramies	133	-	16	30	20	123	Insurance, Exhibit	EEP
Percidae - Perches	239	-	10	18	30	225	Insurance, Population restoration	EEP
Phallostethidae - Priapiumfishes	23	-	-	1	1	4	Insurance/Ark, Exhibit/Education	EEP
Poeciliidae - Poeciliids	349	2	4	12	16	176	Insurance/Ark, Research	EEP
Profundulidae - Middle American killifishes	9	-	-	1	1	7	Insurance	EEP
Pseudomugilidae - Blue eyes	18	-	2	1	2	8	Insurance	EEP+
Telmatherinidae - Sailfin silversides	18	-	-	2	1	11	Insurance, Exhibit, Model	EEP+
Tetraodontidae - Puffers	200	-	-	-	2	176	Insurance, Exhibit, Husbandry training	EEP
Umbridae - Mudminnows	7	-	-	-	1	5	Insurance	EEP
Valenciidae - Toothcarps	3	-	2	-	-	2	Insurance, Research	EEP*
Zenarchopteridae - Halfbeaks	63	-	-	1	4	39	Insurance, Research	EEP

*Pupfishes and Toothcarps are lumped in the same EEP

†Blue eyes, Sailfins and rainbowfishes are lumped in the same EEP.

RCP Category: MON-T

Family	#species	# Threatened species per IUCN Red List Status				#species assessed by IUCN	Required actions	Category
		EW	CR	EN	VU			
Acestrorhynchidae - Smallscale pike characins	26	-	-	-	-	1		Mon-T
Acipenseridae - Sturgeons	25	-	16	2	3	25	Investigate options for educational programmes and raising awareness	Mon-T
Amphiliidae - Loach catfishes	98	-	-	4	9	75		Mon-T
Anabantidae - Climbing gouramies	33	-	-	1	1	28	Determine if species with mandate are kept	Mon-T
Anablepidae - Four-eyed fishes, onesided livebearers and white-eye	18	-	-	-	-	1		Mon-T
Anchariidae - Vaonas	6	-	-	2	-	7		Mon-T
Anostomidae - Headstanders	158	-	-	-	1	16		Mon-T
Apteronidae - Ghost knifefishes	89	-	-	-	1	14		Mon-T
Ariidae - Sea catfishes	153	-	2	1	3	64		Mon-T DNO
Astroblepidae - Naked sucker-mouth catfishes	67	-	2	-	4	47		Mon-T DNO
Atherinidae - Silversides	71	-	5	2	4	35		Mon-T
Austroglanididae - Austroglanids	3	-	-	1	-	3		Mon-T
Balitoridae - River loaches	202	-	2	7	9	112	Investigate taxonomy and conservation actions	Mon-T
Botiidae	10	-	-	1	1	7	Investigate status and conservation needs	Mon-T
Cetopsidae - Whale catfishes	42	-	-	-	-	8		Mon-T DNO
Channidae – Snakeheads	42	-	-	-	1	23		Mon-T
Citharinidae – Lutefishes	8	-	-	-	-	6		Mon-T
Clariidae - Airbreathing catfishes	116	-	6	4	6	95	Establish <i>in situ</i> connections	Mon-T
Claroteidae - Claroteid catfishes	82	-	-	6	10	73		Mon-T DNO
Cottidae - Sculpins	257	-	2	-	4	68	Determine status of <i>Cottus rondeleti</i>	Mon-T
Curimatidae - Toothless characins	106	-	-	1	-	13		Mon-T
Datnioididae - Freshwater tripletails	5	-	1	-	1	3	Research on (artificial) breeding techniques	Mon-T
Denticipitidae - Denticle herrings	1	-	-	-	1	1		Mon-T DNO

RCP Category: MON-T

Family	#species	# Threatened species per IUCN Red List Status				#species assessed by IUCN	Required actions	Category
		EW	CR	EN	VU			
Eleotridae - Sleepers	179	-	4	2	4	78	Determine if there are threatened species outside Australia	Mon-T
Ellopostomatidae	2	-	-	1	-	1		Mon-T DNO
Gobiidae - Gobies	1850	-	15	17	16	894	Investigate European species status	Mon-T
Gymnotidae - Naked-back knifefishes	41	-	-	1	1	9		Mon-T
Gyrinochelidae - Algae eaters	3	-	-	-	-	2		Mon-T
Ictaluridae - North American freshwater catfishes	51	-	1	6	8	47		Mon-T
Indostomidae - Armoured sticklebacks	3	-	-	-	1	3	Investigate further about <i>Indostomus crocodilus</i>	Mon-T
Kneriidae - Shellears	30	-	-	1	4	31		Mon-T
Kryptoglanidae	1	-	-	-	-	NA		Mon-T
Lacantuniidae - Chiapas catfishes	1	-	-	-	1	1		Mon-T
Latidae - Lates perches	13	-	-	3	2	8		Mon-T
Loricariidae - Armoured catfishes	955	-	2	11	6	143	Species level evaluation and approach specialist group	Mon-T
Malapteruridae - Electric catfishes	21	-	-	-	-	16	Investigate taxonomy	Mon-T
Mastacembelidae - Spiny eels	86	-	-	1	4	63		Mon-T
Mochokidae - Squeakers or upside-down catfishes	221	-	4	4	17	194	Determine availability and feasibility of an insurance population	Mon-T
Mormyridae - Elephantfishes	229	-	-	5	16	183	Determine availability and feasibility of an insurance population	Mon-T
Notopteridae - Featherbacks or knifefishes	10	-	-	-	-	8		Mon-T
Odontobutidae - Freshwater sleepers	23	-	-	1	-	10		Mon-T DNO
Osteoglossidae - Arowanas	6	-	-	1	-	3		Mon-T
Percichthyidae - Temperate perches	38	-	1	3	2	18		Mon-T DNO
Petromyzontidae - Northern lampreys	43	-	-	-	-	35		Mon-T DNO

RCP Category: MON-T		# Threatened species per IUCN Red List Status				#species assessed by IUCN	Required actions	Category
Family	#species	EW	CR	EN	VU			
Plotosidae - Eeltail catfishes	42	-	-	-	1	2		Mon-T DNO
Prochilodontidae - Flannel-mouth characiforms	21	-	-	-	1	2		Mon-T
Rhacichthyidae - Loach gobies	3	-	-	1	-	3		Mon-T DNO
Rivulidae - Rivulines	424	-	3	3	12	49	Investigate insurance feasibility and develop strategies to maintain populations	Mon-T
Salangidae - Icefishes or noodlefishes	20	-	-	1	-	8		Mon-T DNO
Schilbeidae - Schilbid catfishes	49	-	-	3	-	57		Mon-T
Serpenticobitidae	3	-	-	-	1	3		Mon-T
Serrasalminidae	98	-	-	-	-	2		Mon-T
Sisoridae - Sisorid catfishes	220	-	3	7	8	131	Investigate insurance feasibility	Mon-T
Syngnathidae - Pipefishes and seahorses	304	-	1	1	1	278	Investigate composition of EAZA collections and assess status <i>in situ</i>	Mon-T

EAZA RCP categories

EEP – EAZA *ex situ* programme. The taxon needs proactive management by EAZA to fulfil its specified *ex situ* roles. This includes programmes that require proactive management to phase out the taxon or replace it with one or more other taxa. The proactive management must not necessarily include managing a population in the EAZA region (e.g. can involve activities by EAZA staff to help manage an *ex situ* population/programme in a range state). EAZA can be the lead partner in the *ex situ* programme or can be a participating partner in a collaboration lead by others (e.g. range state governments, NGOs, other zoo association(s), etc.).

MON-T REPLw - The TAG will monitor the replacement of this taxon with one or more other taxa (specify which).

MON-T Phase out - The TAG will monitor the recommended disappearance of this taxon from EAZA collections.

MON-T DNO - The taxon is currently not present in EAZA collections and is not recommended to be obtained in EAZA collections. Its presence/absence will be monitored by the TAG.

MON-T - The taxon is present in EAZA collections and while there is no specific role for the taxon (with associated management), there is also no active recommendation to replace or phase out the taxon. The TAG will monitor the numbers of this taxon in EAZA collections.

3. Background: Status of the TAG

The Freshwater teleost TAG was until recently part of the former Fish and Aquatic Invertebrate Taxon Advisory Group (FAITAG). The FAITAG was officially split into five new TAGs by the end of August 2019, due to the uniqueness and need of a different approach in terms of developing a management strategy and the goals and objectives that the different former sub-groups (currently officially approved TAGs) were trying to achieve.

In the past years the Freshwater Teleost sub-group was working on prioritising species in urgent need of conservation attention and creating a new platform for collaborative work between institutions that keep freshwater teleosts. This was done by improving communication and focusing on advance husbandry and skills for freshwater species management in zoos and aquariums. This was the starting point of the recently established TAG and resulted in the following TAG mission:

“To achieve conservation by managing freshwater teleost populations that mainly function as Ark or Rescue populations. A large number of freshwater fishes are threatened with extinction and several are already extinct in the wild. For many of these species ex situ populations can be maintained with relatively few resources and high chances of a successful reintroduction to the wild in the future. The EAZA community has the ability in many cases to rapidly respond to a changing situation in the wild and prevent extinction.”

Due to the high number of species under the umbrella of the Freshwater Teleost TAG, it was decided by the TAG that a more efficient and effective approach would be to focus on managing programmes at family level.

4. Challenges of the TAG

The Freshwater teleost TAG is facing many challenges that other TAGs perhaps do not and solutions to these challenges will take a tailor-made approach. The world is continuously changing, and there are many undiscovered and undescribed freshwater fish species that will need help in the future. It's important to remind EAZA members that commit to this RCP that they should expect a long-term commitment to the species they agree to hold. The TAG perceives the commitment to species as a long-term strategy in order to see a result for conservation. This chapter describes the challenges and the first steps to move forward with it.

Number of species

There is an inordinate number of species and families under the remit of this TAG. Furthermore, many species within the families still need to be assessed by IUCN. The TAG would like to keep insurance populations for threatened species. However, they had to reduce the number of the species due to lack of human resource and partly due to space limitations. The TAG wants to avoid keeping all individuals of a species only at one institution. There is a clear need for more participating institutions. Currently this is something that cannot be done with only EAZA institutions, so the TAG needs private holders to collaborate with.

Proposed actions: It is important to use different strategies for different species. Based on the priority list, some species can be clustered.

Taxonomy

There are regular and extensive taxonomic revisions within many freshwater taxa and new species are described each month. The RCP workshop review therefore represents a snapshot in time and future review of families will likely provide fundamental changes to the structure of this evaluation. Although future versions of this RCP will update taxonomy, there are likely to be lags in updating nomenclature, species numbers and family information.

Education and outreach

There is a clear need to improve education for visitors and explain why freshwater fishes are important. From a director's perspective it is very important to draw in visitors. If the public would ask for freshwater teleosts, this would influence the directors' decision to act on it. However, the general public perception is focussed on better known species, resulting in visitors often rushing through the freshwater teleost section to see more popular species.

Proposed actions: Promote species more pro-actively. Spend more effort into explaining about the biology to get visitors more interested. For example, using a roadshow approach. Using around five species that have interesting features and the threats that these species are facing in the wild could increase the interest from the public. Work more closely together with the Education Committee and/or add an educational advisor to the TAG. Engage with organisations that are trying to raise the profile of freshwater fishes (Shoal, Alliance for Freshwater Life). The aquarium and zoo community have the opportunity to engage and support these two organisations.

Inform all EAZA members about the work of the Freshwater Teleost TAG via the available channels (TAG page on member area, articles in Zooquaria, eNews, etc). Perhaps consider creating a newsletter to keep interested parties informed.

Promote successful freshwater fish conservation projects as well as local projects through social media to engage and inform also about local biodiversity.

Conservation goals in range countries

There are challenges related to *in situ* conservation, especially when dealing with the range country authorities. There is a lack of clarity in the conservation goals from the relevant authorities. The TAG perceives the need to start a dialogue with them and talk about clear projects focusing on bringing the fishes back. There are many endangered freshwater teleost species kept within EAZA institutions but there was not a clear plan on what to do with them until now.

Proposed actions: Find intermediate goals. Avoid striving only for reintroduction. Insurance is the main role for freshwater teleost species at this time. Therefore, it is important to keep healthy populations indefinitely. A reintroduction phase may not happen for many years. Engage with and increase communication with IUCN's Freshwater Fish Specialist Group to work on mutual cooperation and improved assessments.

Husbandry

For many species it is difficult to mimic the natural environment and there is sometimes a lack of knowledge on what the original natural environment was before human disturbance. This affects the possibilities to show natural behaviour and to breed certain species. For example, many freshwater teleosts are migratory and have complex life cycles that are impossible to duplicate in an aquarium setting. More research is required to work on best practice.

Proposed actions: Provide general guidance to curators. Work on Best Practice Guidelines (prioritise the key families to start with).

Welfare

There is also a lack of knowledge of optimal welfare. A lot of species that are Extinct in the Wild (EW), are susceptible to some diseases caused by mycobacteria and for which there is no cure known. Some species are kept in higher densities than they would be in the wild which causes stress and if populations aren't carefully managed, as a consequence, they may suffer from immunosuppression.

Proposed actions: Engage with EAZA's Welfare Working Group.

Budget

The budget assigned to freshwater teleosts is also problematic. There needs to be an improved structure, human resources, space, transport, scheduled transfers as well as a need to assign budget for *in situ* projects.

Proposed actions: It's important to remind EAZA members to commit to this RCP. The resources needed are small in comparison with other taxa. There is potential of using mixed exhibits and the enclosures do not have to be an aquarium. For example, using ponds/greenhouses/fountains that are used for other species. Consider the option to engage with the angling community as an economic resource to fund conservation projects. In which case, EAZA believes we should follow this guidance for freshwater teleosts also IUCN has a clear [stance on trophy hunting](#).

Data (ZIMS)

The lack of (freshwater teleost) data entered at ZIMS is a problem. It makes the collaboration between different institutions more difficult. Some non-zoo holders don't have access to ZIMS but they maintain large numbers of important species. Collecting data from these holders is a challenge.

Proposed actions: There are already some existing connections in place between EAZA institutions and aquaculturists/hobbyists. Review a more structured cooperation in line with the new EAZA Population management structure.

Acquisition and disposition

Acquisition and Disposition should be done in line with the respective EAZA procedures. See [4.1. Acquisition and disposition](#) for further details.

Group management

The majority of freshwater fish live in groups and therefore require group management. This requires different systems, models, training and possibly procedures than most other EEPs, which have not yet been established (see Roadmap to Group Management below). See [4.2. Roadmap to group management](#) for further details.

Reproduction management

A reproduction management plan is also needed: hormonal induced spawning can help with egg-laying species. As for contraceptive tools, unfortunately, at the moment there are no products that can easily be applied to female fish and that also do not have any negative effects on the males too. That said, there may be some management changes that can be implemented and that have been proven effective in tilapia (e.g.: temperature control to avoid spawning, treating fish with testosterone to have only males, reducing their food will slow the development rate and ultimately population growth, and introduce a predator to eat the eggs).

Proposed actions: Engage with EAZA's Reproductive Management Group.

4.1 Acquisition and Disposition

Currently EAZA is also working on a plan for sustainable acquisition of fishes and aquatic invertebrates which will be incorporated in the new strategy (2021-2025). Furthermore, EAZA and EUAC have joined forces and through a working group are developing an Acquisition and Disposition guideline focused on aquarium species. These documents will be in line one with each other and will aim to bring clarity on the following points:

- Purchase of animals (including from wholesalers, auctions, the internet)
- Acquisition of animals from private hobbyists & breeders (not purchased)
- Direct collection from the wild by the institution
- Out placing animals to non-EAZA members, including other licensed zoos/aquariums, private hobbyists and breeders
- Out placing animals in the trade (including selling)
- Culling of excess individuals to avoid gene dominance in a population

4.2 Roadmap to group management

The management of virtually all populations that will be managed in this TAG is group-based. There is a need for further development of the **science and software tools for group-based population management** that is easy to use and implement, with minimum use of human resources. The TAG will contribute to progress this through:

- Involvement in discussions for **institutional datarecord-keeping systems and conventions**. There is a need to collect data on groups for freshwater fish and to share this in an easy way and standardised format with the relevant studbook

keepers. Ideally, such a system would also be able to incorporate data from private holders. As a first step, discussions are needed with Species360 to see if and how ZIMS for Husbandry can be used to record the right data on an institutional level. The first step forward here will be taken by the global group management data-record keeping thematic group, which is currently organising online as part of the Group Management Initiative (GMI).

- Involvement in discussions for **studbook keeping systems**, to collate the institutional data and to be used as the basis for analysis by the EEP coordinator and **tools for analysis**. ZIMS for Studbooks only seems an option for species that are tracked as adults. For other species, likely a different software needs to be used. This needs to be developed and discussions are had with the Species Conservation Toolkit Initiative (SCTI) to identify opportunities to integrate group management functionality into existing initiatives for the development of new software. This was also informed by the global group management software group, which took part in the larger Group Management workshop online in October 2020 during the IUCN CPSG conference.
- Working with the EAZA Population Management Centre (PMC) to develop **tailor-made management strategies** for each EEP. In the first round, initially basic management strategies will be developed, and these experiences and new insights will be used to develop more advanced strategies. The EAZA PMC, in cooperation with Antwerp zoo, is currently working on developing a management strategy for a species of Mexican pupfish so it can function as a model for developing strategies for other species during the second half of 2021.

4.3 Regional Advisory Working Groups

When working on freshwater teleost conservation, *in situ* challenges are very likely to affect a considerable amount of families. As a strategy to tackle this, during the workshop it was agreed that the TAG could work together with regional working groups that would focus on those challenges. On that note, the workload could be divided or accomplished by one very active person. They would be acting as the main contact person who could potentially start coordinating necessary actions, evaluating the situation on the ground and keeping the TAG informed of any relevant news and/or calls for action.

At this stage, these are the following proposed regional advisory working groups:

- Western African group lead by Ron Bernhard (Rotterdam)
- Madagascar group lead by Hannah Thomas (Chester) and Charles Fusari (Aquarium Tropical de la Porte Doree, Paris Aquarium)
- Mesoamerica group lead by Michael Koeck (Haus des Meeres)
- African Rift Lakes group lead by Jakub Kordas (Wroclaw) and Marko Hasselmann (Berlin)
- Southeast Asia group lead by Muhammed Saufi Suria (Singapore)
- Western Palearctic group lead by Anton Weissenbacher (Vienna)

Depending on availability and conservation needs, new working groups may be created in the near future (such as for South Asia and South America regions).

5. Family sheets

RCP Category: EEP

Ricefishes

Adrianichthyidae

Status in the wild

Family information from FishBase.

Genera: 2
Species: 37

Range description

India and Japan to Indo-Australian Archipelago.

Ex situ information

None are in the aquarium trade.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
2.4.254	260	8

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	8
Agriculture & aquaculture	3
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	10
Human intrusions & disturbance	8
Natural system modifications	11
Invasive & other problematic species, genes & diseases	21
Pollution	23
Geological events	3
Climate change & severe weather	-
Other options	1

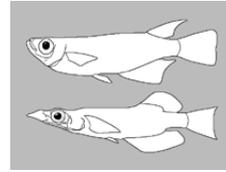


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	5
Endangered	4
Vulnerable	1
Near Threatened	8
Least Concern	12
Data Deficient	6
Total on Red List*	36
with IUCN mandate for <i>ex situ</i> conservation	7

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes several threatened species some of which with an *ex situ* mandate. The main threat is environmental destruction and the distribution is sometimes restricted to a single island. Therefore, the benefit of having an insurance population for the species is high. There are different types of breeding strategies and ongoing evolutionary radiation in the family. The family has been bred in aquaria but the feasibility for an EAZA captive population is unknown. It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Programme decision statement

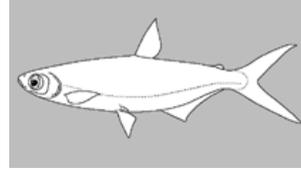
EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the insurance role selected for *Adrianichthyidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=210>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

African tetras

Alestidae

Status in the wild

Family information from FishBase.

Genera: 19

Species: 119

Range description

Africa

Ex situ information

Some are in the aquarium trade.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
15.15.1463	1493	63

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	4
Agriculture & aquaculture	7
Energy production & mining	15
Transportation & service corridors	2
Biological resource use	37
Human intrusions & disturbance	1
Natural system modifications	13
Invasive & other problematic species, genes & diseases	6
Pollution	32
Geological events	-
Climate change & severe weather	11
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	4
Vulnerable	9
Near Threatened	2
Least Concern	78
Data Deficient	14
Total on Red List*	108
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family is growing continuously with new species being described regularly. There are several threatened species which are mainly affected by mining and small distributions. One species is threatened by the aquarium trade. Therefore, the benefit of having an insurance population for the species is high. However, despite having the family kept and bred in aquaria, the feasibility for an EAZA captive population is unknown.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, the following actions were identified: Research taxonomy and conservation needs.

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Programme decision statement

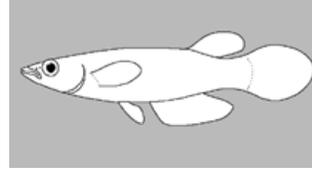
EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the identified actions and insurance role selected for *Alestidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=518>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Killifishes

Aplocheilidae

Status in the wild

Family information from FishBase.

Genera: 5
Species: 14

Range description

Africa, southern Asia, southern North America to South America.

***Ex situ* information**

Many are in the aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
48.28.1518	1594	45

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	7
Human intrusions & disturbance	-
Natural system modifications	3
Invasive & other problematic species, genes & diseases	5
Pollution	2
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	5
Vulnerable	2
Near Threatened	-
Least Concern	3
Data Deficient	4
Total on Red List*	14
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There are some taxonomic unclarities in the family. The family includes several threatened species many of which are of the genus *Pachypanchax*. There are no species with an IUCN mandate for *ex situ* conservation. Some of the species in this family are kept by EAZA members and many species are common in the trade.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions. In this case, many threatened killifish species already have insurance populations and many institutions are already contributing to accomplish this role.

Programme decision statement

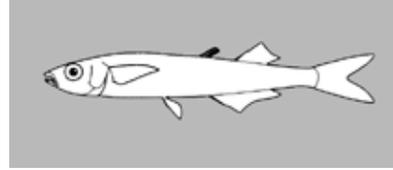
EEP: Proactive management and active coordination along with a clear plan among all the holders will be required to deliver the EAZA contributions to the insurance role selected for the *Aplocheilidae* family. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=476>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Neotropical silversides

Atherinopsidae

Status in the wild

Family information from FishBase.

Genera: 13

Species: 112

Range description

Freshwater and marine temperate waters of North America, in freshwater and marine tropical and subtropical waters of Central America, and in South America present only in temperate freshwaters yet in all marine (tropical, subtropical, and temperate) waters. Most species are marine. However, there are about 50 species confined to freshwater and others that enter estuaries to spawn or as young.

Ex situ information

Unknown numbers in aquarium trade. Reported maximum length 52 cm SL for one species and smallest is *Menidia colei* (4.2 cm SL). Some species of *Chirostoma* and *Odontesthes* are of economic importance, either for sport fishing, artisanal fisheries or aquaculture.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	13
Agriculture & aquaculture	7
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	14
Human intrusions & disturbance	2
Natural system modifications	22
Invasive & other problematic species, genes & diseases	13
Pollution	33
Geological events	-
Climate change & severe weather	7
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	1
Extinct in the Wild	-
Critically Endangered	7
Endangered	8
Vulnerable	3
Near Threatened	2
Least Concern	15
Data Deficient	12
Total on Red List*	73
with IUCN mandate for <i>ex situ</i> conservation	4

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Many species have been assessed as threatened including four with IUCN mandates for *ex situ* conservation. The transfer of individuals from *in situ* partners in Mexico to Europe is challenging due to the legislation in the range country and the logistics of transporting the animals. Therefore, the TAG agreed to prioritise *in situ* conservation and *ex situ* in range until transportations are feasible.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species from Central America categorised as Critically Endangered, Endangered or Vulnerable that can be maintained in an aquarium. There may be partners in Mexico to link with.

Roles and actions identified

Identified Actions: Before start working on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, the following action was identified: Research how to transport Neotropical silversides.

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions. However, before managing the species it's important to find ways to transport *Atherinopsidae* complying with the welfare of the animals.

Programme decision statement

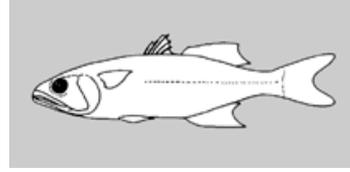
EEP: During the workshop it was agreed that active management is needed to fulfil the selected insurance role and coordinate the action decided for the Neotropical silversides. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=623>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Madagascar rainbowfishes

Bedotiidae

Status in the wild

Family information from FishBase.

Genera: 2
Species: 16

Range description

Madagascar. Mostly in streams and rivers and, to a lesser extent, lakes, swamps and marshes.

Ex situ information

None are in the aquarium trade.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.315	315	11

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	2
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	23
Human intrusions & disturbance	-
Natural system modifications	4
Invasive & other problematic species, genes & diseases	21
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	6
Endangered	9
Vulnerable	8
Near Threatened	1
Least Concern	-
Data Deficient	4
Total on Red List*	28
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family enlists several threatened species. IUCN may not be up to date because the TAG suspects that it is likely that some of these species are highly threatened or even extinct already. The main threats include habitat loss and degradation, climate change, competition and predation from alien invasive species. Therefore, the benefit of having insurance populations for these species is high. Madagascar is probably one of the last places that still enables legal acquisition. Some of the species in this family are kept in EAZA institutions and some species are common in the private/hobbyist community, but it is unclear if this includes the threatened species. It is advised to investigate the breeding and releasing requirements to determine the feasibility of an insurance role for the threatened species. Their colourful appearance and small space requirements make them suitable for an exhibit role. The TAG especially encourages institutions with Madagascar themed exhibits to take them into their collection. The TAG sees the need to investigate options to work with partners in Madagascar and support the insurance role by conducting *in situ* research. It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, as ZSL is actively working with Chester Zoo (and some AZA zoos) in Madagascar to conduct *in situ* research, focusing on breeding and translocation requirements, EAZA institutions are encouraged to support and participate in this partnership.

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Exhibit: Their colourful appearance and small space requirements make them suitable for this role.

Research *in situ*: There is need for research and supporting research in country with a focus on collecting background information such as habitat, biology and threats and developing Best Practice Guidelines to tackle any potential issues with breeding.

Programme decision statement

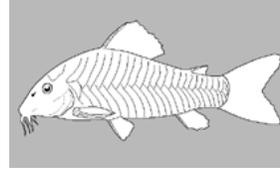
EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the identified actions and selected roles for *Bedotiidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=563>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Callichthyid armored catfishes

Callichthyidae

Status in the wild

Family information from FishBase.

Genera: 9
Species: 206

Range description

South America and Panama.

Ex situ information

Many are in the aquarium trade.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
3.2.2155	2160	170

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	4
Energy production & mining	3
Transportation & service corridors	-
Biological resource use	11
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	1
Pollution	10
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	1
Near Threatened	2
Least Concern	28
Data Deficient	12
Total on Red List*	44
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Many species have not been evaluated by IUCN. Currently, only two species have been assessed as threatened. However, IUCN may not be up to date because the TAG thinks that is likely that some of these species are highly threatened and are likely to be lost in the wild. Therefore, the benefit of having an insurance population for some of these species is high.

Whether it is feasible to set up these insurance populations, is unclear. However, some of the species in this family are kept in EAZA institutions and many species are common in the trade. Nevertheless, it is unclear if this includes the threatened species.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, the following actions were identified: Identify if the species kept in EAZA institutions belong to the threatened species; and investigate if common species available in the trade are threatened species.

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Programme decision statement

EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the identified actions and the insurance role selected for *Callichthyidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=156>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Characins

Characidae

Status in the wild

Family information from FishBase.

Genera: 145
Species: 1135

Range description

Southwestern Texas, Mexico, Central and South America.

Ex situ information

Many are in the aquarium trade. Some are large species; many are under 3 cm with the smallest reaching a maximum size of about 13 mm. Members of this family form food for larger fishes that are important for both commercial and subsistence reasons in the rivers of Central and South America. Several species are moderately important for the aquarium trade and are exported especially from Brazil and Venezuela.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
44.11.57578	57632	563

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	6
Agriculture & aquaculture	29
Energy production & mining	21
Transportation & service corridors	-
Biological resource use	14
Human intrusions & disturbance	1
Natural system modifications	25
Invasive & other problematic species, genes & diseases	8
Pollution	59
Geological events	-
Climate change & severe weather	1
Other options	1

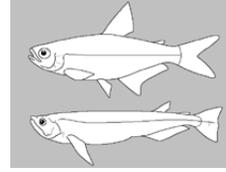


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	3
Endangered	3
Vulnerable	13
Near Threatened	8
Least Concern	145
Data Deficient	72
Total on Red List*	244
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes several threatened species of which the Yucatan tetra (*Astyanax altior*) has an *ex situ* mandate. There is ongoing taxonomic research in range but without a conservation focus. Given the mining activities in Latin America, the TAG assumes (more) local species to be threatened. Therefore, the benefit of having an insurance population for these species is high. The feasibility of an insurance population is high because some species are kept in EAZA (not the Yucatan tetra according to ZIMS) and the family is commonly found in aquaculture and trade. The *in situ* situation may require more careful monitoring in case there are any opportunities for EAZA involvement. This includes monitoring if the species that are already kept or available become threatened (through changes in threats and conservation status).

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Monitoring: This role would focus on finding out what is the real status in the wild and if there is any opportunity for EAZA to get involved.

Research *in situ*: There is need for research and supporting research in country with focus on background information such as habitat, biology and threats and developing Best Practice Guidelines to tackle any issues with breeding.

Programme decision statement

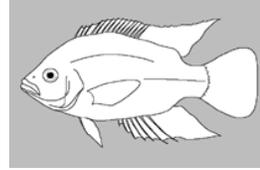
EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the selected roles for *Characidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=102> (Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Cichlids

Cichlidae

Status in the wild

Family information from FishBase.

Genera: 250

Species: 1713

Range description

Fresh- and brackish waters in Central and South America, Texas (1 species), West Indies, Africa, Madagascar, Syria, Israel, Iran, Sri Lanka, and coastal southern India.

Ex situ information

Many are in the aquarium trade. Breeding activities highly organised. Because of the varied behaviour and often attractive colours and moderate size, cichlids are commonly kept as ornamental fish. Practically all genera and more than half of the species have been kept in aquaria at some time. Sportfishing is concentrated on the *Cichla* species for which there is a strong North American and Brazilian market. All the larger species are used as food fish. Some species are subject to aquaculture.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
103.101.31187	31439	1006

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	42
Agriculture & aquaculture	71
Energy production & mining	67
Transportation & service corridors	9
Biological resource use	685
Human intrusions & disturbance	8
Natural system modifications	89
Invasive & other problematic species, genes & diseases	239
Pollution	587
Geological events	21
Climate change & severe weather	16
Other options	1

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	5
Extinct in the Wild	-
Critically Endangered	118
Endangered	62
Vulnerable	94
Near Threatened	49
Least Concern	673
Data Deficient	189
Total on Red List*	1190
with IUCN mandate for <i>ex situ</i> conservation	9

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Large family with many threatened species, including some with a mandate for ex-situ management. Their threats are mainly climate change, overharvesting, invasive alien species and habitat loss. The TAG thinks that it is likely that many of these species are highly threatened and are likely to be lost in the wild. Therefore, the benefit of having an insurance population for these species is high. There are projects on numerous species (Madagascar, Cameroon, etc.). Some species are kept and bred in EAZA institutions, therefore an insurance role was considered feasible. AZA has a Lake Victoria cichlid programme and many species are available in pet trade. The TAG sees a need for research on plasticity (how it may affect future reintroductions, if it can be prevented, etc.) and preventing of hybridisation is an important factor for some species. It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Research *ex situ*: There is need for research on plasticity (how it may affect future reintroductions, if it can be prevented, etc.) and on how to prevent hybridisation.

Programme decision statement

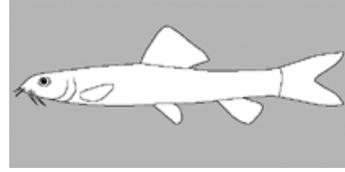
EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the selected roles for *Cichlidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=349>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Loaches

Cobitidae

Status in the wild

Family information from FishBase.

Genera: 28

Species: 262

Range description

Eurasia and Morocco.

Ex situ information

Many are in the aquarium trade. Maximum length about 40 cm.

Some are popular aquarium fishes.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.846	846	105

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	9
Endangered	18
Vulnerable	14
Near Threatened	7
Least Concern	70
Data Deficient	31
Total on Red List*	149
with IUCN mandate for <i>ex situ</i> conservation	7

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	14
Agriculture & aquaculture	13
Energy production & mining	5
Transportation & service corridors	5
Biological resource use	24
Human intrusions & disturbance	1
Natural system modifications	68
Invasive & other problematic species, genes & diseases	20
Pollution	53
Geological events	1
Climate change & severe weather	22
Other options	-

Rationale

Workshop Discussion: There are some taxonomic unclarities in the family. The family includes several threatened species some of which have a mandate (including one European species from Ukraine). It seems likely that some species are at risk of being lost in the wild. Therefore, the benefit of having an insurance population for these species is high.

Whether it is feasible to set up these insurance populations, is unclear. Some of the species in this family are kept in EAZA and many species are common in the trade, but it is not known if this includes the threatened species.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species. Yet it is important to consider that the breeding strategy of many species is poorly known and may be difficult in aquariums.

Roles and actions identified

Identified Actions: Before start working on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, the following action was identified: Research taxonomy.

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions. However, before managing the species it is important to find some clarity in regard to the taxonomic complexity of this family.

Programme decision statement

EEP: During the workshop it was agreed that active management is needed to fulfil the selected insurance role and coordinate the action decided for *Cobitidae*. Therefore, the TAG recommends to actively manage it as EEP.

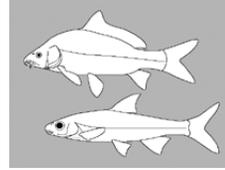
References used

FishBase information and picture:

<https://www.fishbase.org/Summary/FamilySummary.php?id=127&lang=english> (Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Minnnows or carps
Cyprinidae



Status in the wild

Family information from FishBase.

Genera: 376
Species: 3163

Range description

Freshwaters of North America (northern Canada to southern Mexico), Africa, and Eurasia.

Ex situ information

Many are in the aquarium trade. Maximum length at least 2.5 m to probably 3 m in one species; many species less than 5 cm.

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
39.36.40285	40360	710

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	130
Agriculture & aquaculture	185
Energy production & mining	120
Transportation & service corridors	35
Biological resource use	561
Human intrusions & disturbance	82
Natural system modifications	854
Invasive & other problematic species, genes & diseases	361
Pollution	806
Geological events	2
Climate change & severe weather	280
Other options	3

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	22
Extinct in the Wild	1
Critically Endangered	124
Endangered	204
Vulnerable	234
Near Threatened	121
Least Concern	1009
Data Deficient	448
Total on Red List*	2158
with IUCN mandate for <i>ex situ</i> conservation	95

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family contains many threatened species several of which have an *ex situ* mandate. The TAG thinks that is likely that some of these species are highly threatened and are likely to be lost in the wild. Therefore, the benefit of having an insurance population for these species is high. Many other species of the family are found in the fisheries industry which are therefore falling under their remit to protect.

EAZA holders can keep specimens up to the size of 1.5 m. Insurance roles would be feasible as populations are already kept and bred in EAZA and many small species only require little space and maintenance.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Programme decision statement

EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the insurance role selected for *Cyprinidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=122>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Pupfishes

***Cyprinodontidae* (incl. *Aphaniidae*)**

Status in the wild

Family information from FishBase.

Genera: 10

Species: 137

Range description

United States, Middle America, West Indies, parts of northern South America, northern Africa, and Mediterranean Anatolian region. Chiefly freshwater and brackish; rarely coastal marine.

Ex situ information

Many are in the aquarium trade. About 22 cm maximum length.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
4.3.1375	1382	21

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	8
Agriculture & aquaculture	4
Energy production & mining	3
Transportation & service corridors	1
Biological resource use	2
Human intrusions & disturbance	4
Natural system modifications	47
Invasive & other problematic species, genes & diseases	49
Pollution	29
Geological events	1
Climate change & severe weather	15
Other options	-

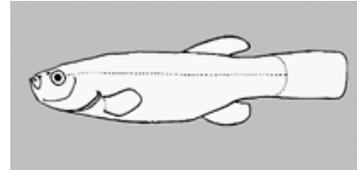


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	7
Extinct in the Wild	3
Critically Endangered	9
Endangered	17
Vulnerable	18
Near Threatened	6
Least Concern	15
Data Deficient	4
Total on Red List*	78
with IUCN mandate for <i>ex situ</i> conservation	18

* Some species without assessed category may have been included

Rationale

Workshop Discussion:

The pupfishes contain a significant number of threatened species of which many also have IUCN *ex situ* mandates. Some of the species in this family are kept and bred in EAZA institutions and there is a strong interest from the hobby community. Surveys of *ex situ* populations are conducted regularly in EAZA (Jorge, ZSL) and North America (Chris Martin, Berkley University). It seems feasible and beneficial to establish and formalise insurance populations from the threatened species that are already kept. It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance/Ark: Several species are extinct in the wild. For this reason, this direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions. In this case, the *Cyprinodontidae* family contains many threatened species several of which have IUCN *ex situ* mandates. Based on the threat category several species are likely to be lost in the wild and in need of an insurance population. Given the high feasibility and benefit, the next logical step would be to formalise the insurance populations.

Population restoration: This direct conservation would focus on re-establishing these species to part of their former range from which they have been extirpated. This role implies providing disease-free, behaviourally competent and genetically valuable individuals for release into the wild. Of course, this would imply to ensure that any reintroductions are done according to the IUCN Reintroduction Guidelines and to avoid any releases that may cause hybridisation in the wild.

Research: This role would focus on different types of research such as disease management, population management, reproductive biology.

Programme decision statement

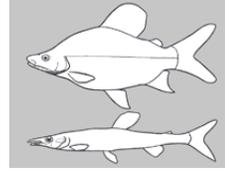
EEP: From the 78 species assessed (out of 137 *Cyprinodontidae* species), 47 are threatened (EW, CR, EN or VU). Among the most common threats to this family are natural system modifications, invasive species and pollution. To avoid a critical loss of pupfishes species, during the workshop, the TAG agreed that the logical action would be to actively manage the family as an EEP with a focus on population insurance.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=212> (Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Distichodus
Distichodontidae



Status in the wild

Family information from FishBase.

Genera: 16
Species: 102

Range description

Africa

***Ex situ* information**

Some are in the aquarium trade.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	11
Agriculture & aquaculture	5
Energy production & mining	14
Transportation & service corridors	1
Biological resource use	26
Human intrusions & disturbance	-
Natural system modifications	8
Invasive & other problematic species, genes & diseases	5
Pollution	23
Geological events	-
Climate change & severe weather	5
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	3
Vulnerable	4
Near Threatened	1
Least Concern	68
Data Deficient	12

Total on Red List* 90

with IUCN mandate for *ex situ* conservation -

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes several threatened species. The species group from west-central Africa is highly impacted by mining and damming. Therefore, the benefit of having an insurance population for the threatened species is high.

The fish are colourful but usually not suitable for mixed exhibits. The species are relatively easy to keep which offers a potential training role for them. It is feasible to set up these insurance populations because some of the species in this family are kept and bred in EAZA institutions and some species are found in the trade, but it is unclear if this includes the threatened species. The TAG is not aware of any party that does conservation work for the family. EAZA could act on that by keeping insurance populations.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Training: The knowledge on husbandry expertise should be shared among all holders. The *ex situ* population can be utilised to gain expertise on optimal husbandry and welfare that could be applied to similar families/species.

Programme decision statement

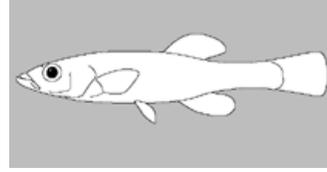
EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the selected roles for *Distichodontidae*. Therefore, the TAG recommends to actively manage it as EEP. It could be potentially managed together with the Cichlids.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=671>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Topminnows and killifishes

Fundulidae

Status in the wild

Family information from FishBase.

Genera: 3
Species: 44

Range description

Lowlands of North and Middle America from south-eastern Canada to Yucatan, including the Mississippi River drainage, Bermuda and Cuba.

Ex situ information

Many are in the aquarium trade.
Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.15	15	1

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	5
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	1
Biological resource use	5
Human intrusions & disturbance	1
Natural system modifications	13
Invasive & other problematic species, genes & diseases	6
Pollution	9
Geological events	-
Climate change & severe weather	2
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	1
Extinct in the Wild	-
Critically Endangered	2
Endangered	3
Vulnerable	3
Near Threatened	1
Least Concern	28
Data Deficient	-
Total on Red List*	41
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Several species have been assessed as threatened. However, IUCN may not be up to date because the TAG thinks that is likely that some of these species are highly threatened and are likely to be lost in the wild. Therefore, the benefit of having an insurance population for some of these species is high. There are also concerns about species being considered for the Alien Invasive Species (AIS) list under EU legislation.

Some of the species in this family are kept and bred in EAZA institutions, including insurance populations for at least two species (listed as DD but a new assessment would likely list them as EN).

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Lobby: The first step would imply to communicate with EAZA EU policy department about the effects of the Mummichog (*Fundulus heteroclitus*) being listed on the AIS. This role would imply solving potential political issues and possibly lobbying for devising a way to prevent the listing of this species or trying to get an exemption for the aquariums. In the near future, this situation could apply to other species.

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions. There is need for active coordination between EAZA institutions to succeed with this role.

Programme decision statement

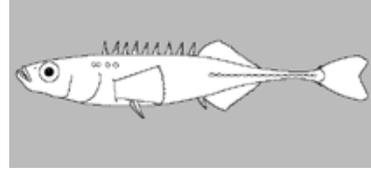
EEP: Some *Fundulidae* species are kept within EAZA. Pro-active management and dedication from all holders is needed to ensure that the programme roles are properly delivered. Therefore, the TAG recommends to actively manage this species as EEP.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=570>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Sticklebacks and tubesnouts

Gasterosteidae

Status in the wild

Family information from FishBase.

Genera: 5
Species: 18

Range description

Northern Hemisphere.

Ex situ information

Some are in the aquarium trade. About 18 cm maximum length reached in one species.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**[^]

M.F.U.	Total	Number of species
1.2.1317	1320	17

**The current information from ZIMS is incomplete

[^] Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	1
Extinct in the Wild	-
Critically Endangered	1
Endangered	1
Vulnerable	1
Near Threatened	1
Least Concern	9
Data Deficient	2
Total on Red List*	17

with IUCN mandate for *ex situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	1
Natural system modifications	3
Invasive & other problematic species, genes & diseases	3
Pollution	5
Geological events	-
Climate change & severe weather	2
Other options	1

Rationale

Workshop Discussion: Few species of the family are threatened. One of which is a CR species from Greece (*Pungitius hellenicus*). The other threatened species are from China and therefore not under this RCP's remit. ZSL is associated with an ongoing project for *P. hellenicus*. The benefit of focussing on this Greek species and formalising the insurance population for it is high.

Furthermore, some species of this family are kept and easily bred in EAZA institutions and some species are found in the trade, but it is unclear if this includes the threatened species.

Finally, it was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions. There is need for active coordination between EAZA institutions to succeed with this role with a special focus on *Pungitius hellenicus*.

Programme decision statement

EEP: Some *Gasterosteidae* species are kept within EAZA. Pro-active management and dedication from all holders is needed to ensure that the insurance role is properly delivered and find clarity on which *Gasterosteidae* species are kept within EAZA. Therefore, the TAG recommends to actively manage this family as EEP.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=260>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Splitfins
Goodeidae



Status in the wild

Family information from FishBase.

Genera: 18
Species: 51

Range description

Nevada and west central Mexico.

***Ex situ* information**

Some are in the aquarium trade. Attains 20 cm maximum length.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
54.64.5835	5953	80

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	13
Agriculture & aquaculture	34
Energy production & mining	2
Transportation & service corridors	-
Biological resource use	4
Human intrusions & disturbance	20
Natural system modifications	34
Invasive & other problematic species, genes & diseases	37
Pollution	38
Geological events	2
Climate change & severe weather	12
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	1
Extinct in the Wild	2
Critically Endangered	14
Endangered	14
Vulnerable	6
Near Threatened	-
Least Concern	4
Data Deficient	-
Total on Red List*	41
with IUCN mandate for <i>ex situ</i> conservation	20

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes many threatened species, few of which have an *ex situ* mandate. The family is facing numerous threats including infrastructure development, agriculture and invasive tilapia species. Most of the species occur in one area where also many threatened species of other families such as silversides are occurring. Therefore, the benefit of having an insurance population for some of these species is high.

There is some taxonomic unclarity about the North American species and AZA seems to show little interest in the family. Most of the 40-50 recognised species are kept and bred in EAZA institutions and some species are found in the trade. The EAZA community has a particularly important role to play in the conservation of these species because no other party with the potential to keep *ex situ* populations is prioritising them. The feasibility of insurance populations is high as active reintroductions of EW species are already ongoing and more are planned.

It was decided that this family would benefit from active management to fulfil its potential insurance and/or source role by maintaining populations of the relevant species.

Roles and actions identified

Insurance/Ark: There are 2 species extinct in the wild (*Skiffia francesae* and *Allotoca goslinae*). For this reason, this direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions. In this case, the Goodeidae family contains many threatened species several of which have IUCN *ex situ* mandates. Based on the threat category several species are likely to be lost in the wild and in need of an insurance population. Given the high feasibility and benefit, the next logical step would be to formalise the insurance populations.

This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Population restoration: This direct conservation would focus on re-establishing these species to part of their former range from which they have been extirpated. This role implies providing disease-free, behaviourally competent and genetically valuable individuals for release into the wild. Of course, this would imply to ensure that any reintroductions are done according to the IUCN Reintroduction Guidelines and to avoid any releases that may cause hybridisation in the wild.

Research: This direct conservation role would focus on taxonomic research on Meso American species.

Programme decision statement

EEP. Active coordination along a clear plan among all the holders will be required to deliver the EAZA contributions to the *ex situ* management roles selected for the *Goodeidae* family. Therefore, the TAG recommends to actively manage this species as EEP.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=213> (Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Pencilfishes

Lebiasinidae

Status in the wild

Family information from FishBase.

Genera: 7
Species: 77

Range description

Central America in Costa Rica and Panama and in all countries of South America except Chile. Most species are found in quiet clear or black water streams from sea level to about 250 meters elevation, always in fresh water. Some species occur in much higher elevations, to over 1000 meters.

Ex situ information

Many are in the aquarium trade. Many of the species in the *Pyrrhulininae*, especially the pencilfishes, *Nannostomus*, are important aquarium fishes.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.883	883	28

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

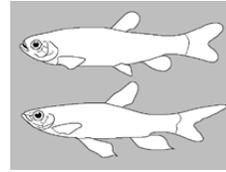


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	10
Data Deficient	2
Total on Red List*	13
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Currently, only one species has been assessed as threatened. This CR species has a restricted range but is commonly found in trade (assumed to be wild caught). The aquarium trade is therefore identified as one of the threats. EAZA has a role to play in addressing this threat. Suggested actions include getting in contact with import companies to find out why they are still trading wild caught individuals and if there is a way to sustainably breed them. Furthermore, an increasing number of imports of related species have been recorded in recent years. Offering EAZA institution bred offspring to take the pressure off the wild population would probably be ineffective on the large-scale aquarium trade. However, EAZA can at least breed for the community so that EAZA aquaria are not contributing to the problem. Due to the risk of extinction in the wild and the involvement of the aquarium trade in the issue, the benefit of having an insurance population for this species is high.

It is feasible to set up the insurance population as at least one institution keeps and breeds them. No other party with a potential to keep *ex situ* populations focuses on this. It is furthermore advised to conduct husbandry research to develop Best Practice Guidelines (BPG).

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, the following action was identified: Getting in contact with import companies to find out why they are still trading wild caught individuals.

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Research: This role would focus on husbandry research and aiming to publish Best Practice Guidelines.

Programme decision statement

EEP. As a strategy to reduce pressure on wild caught animals, the TAG agreed on breeding and developing best practice guidelines for pencilfishes. Furthermore, active management is needed to fulfil the selected roles and actions decided for *Lebiasinidae*.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=107>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Rainbowfishes

Melanotaeniidae

Status in the wild

Family information from FishBase.

Genera: 7
Species: 95

Range description

Northern and eastern Australia and New Guinea and some nearby islands.

Ex situ information

Many are in the aquarium trade. Males usually more colourful than females. Maximum length about 12 cm.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
61.35.4251	4347	114

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	1
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	5
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

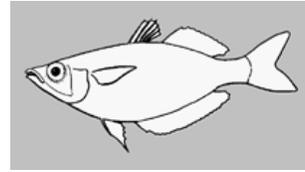


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	1
Vulnerable	9
Near Threatened	9
Least Concern	10
Data Deficient	14
Total on Red List*	36
with IUCN mandate for ex situ conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There are many threatened species in the family. Obviously, the Australian species are outside of the remit of the RCP. However, several of the remaining species require conservation action in the form of insurance populations. Some of those are already in place. It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

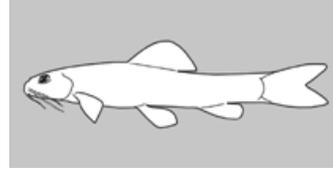
Programme decision statement

EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the insurance role selected for *Melanotaeniidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=564>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Nemacheilidae***Nemacheilidae**

Status in the wild

Family information from FishBase.

Genera: 47
Species: 696

Range description

NA

Ex situ information

Unknown numbers in aquarium trade.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	17
Endangered	29
Vulnerable	44
Near Threatened	10
Least Concern	107
Data Deficient	92
Total on Red List*	298
with IUCN mandate for <i>ex situ</i> conservation	13

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	16
Agriculture & aquaculture	11
Energy production & mining	15
Transportation & service corridors	3
Biological resource use	46
Human intrusions & disturbance	15
Natural system modifications	139
Invasive & other problematic species, genes & diseases	19
Pollution	150
Geological events	-
Climate change & severe weather	31
Other options	-

Rationale

Workshop Discussion: The taxonomy has been changed recently and little is known about the family. Many species are found in Europe, where all habitat types are assumed to be threatened. Therefore, it is possible that some of these species are potentially lost in the wild. The benefit of having an insurance population for these species would be high. This family would benefit from being prioritised for management, given the high number of unassessed species and the fact that no other party is known to work on them. It is advised to take the European species as a starting point of investigation. Whether it is feasible to set up these insurance populations, is unclear. It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, the following action was identified: Further investigation on status in the wild with priority on European species.

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Research: This role would focus on *in situ* research to help assess the status in the wild of *Nemacheilidae*.

Programme decision statement

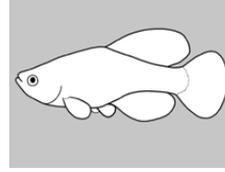
EEP. Only 298 species (of 696 species) have been assessed by IUCN. From those, there are 17 species listed as Critically Endangered, and possibly functionally Extinct in the Wild. Proactive management and coordination along a clear strategy among all the holders will be required to deliver the EAZA contributions to the *ex situ* management roles and actions selected for *Nemacheilidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=692>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

African rivulines
Nothobranchiidae



Status in the wild

Family information from FishBase.

Genera: 12
Species: 273

Range description

Continental Africa (south of Sahara Desert to South Africa).

***Ex situ* information**

Unknown numbers in aquarium trade.

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	20
Agriculture & aquaculture	49
Energy production & mining	42
Transportation & service corridors	6
Biological resource use	89
Human intrusions & disturbance	5
Natural system modifications	12
Invasive & other problematic species, genes & diseases	3
Pollution	65
Geological events	-
Climate change & severe weather	7
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	5
Endangered	31
Vulnerable	36
Near Threatened	13
Least Concern	86
Data Deficient	35
Total on Red List*	206
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There is a high number of threatened species in the family. They have a restricted range with fragmented populations.

Their attractive appearance and small space requirements give them the potential for an exhibit role. The TAG recommends investigating the potential and feasibility to work with organised hobbyists. It is feasible to set up these insurance populations because they are easily kept and bred in EAZA (including threatened species).

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Exhibit: The family African rivulines contains many attractive species with small space requirements that could fulfil this non-conservation role. Furthermore, it could serve to bring specific educational messages.

Programme decision statement

EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the selected roles for *Nothobranchiidae*. Therefore, the TAG recommends to actively manage it as EEP.

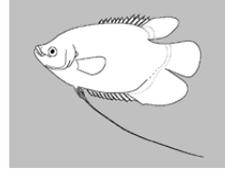
References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=642>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Gouramies

Osphronemidae



Status in the wild

Family information from FishBase.

Genera: 14
Species: 133

Range description

Pakistan and India to Malay Archipelago and Korea. (under review as family content has changed)

Ex situ information

Some are in the aquarium trade. About 80 cm maximum length.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
9.4.1518	1531	52

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	16
Agriculture & aquaculture	83
Energy production & mining	6
Transportation & service corridors	2
Biological resource use	80
Human intrusions & disturbance	3
Natural system modifications	24
Invasive & other problematic species, genes & diseases	3
Pollution	25
Geological events	-
Climate change & severe weather	1
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	16
Endangered	30
Vulnerable	20
Near Threatened	7
Least Concern	29
Data Deficient	23
Total on Red List*	123
with IUCN mandate for <i>ex situ</i> conservation	7

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes many threatened species, seven of which have an *ex situ* mandate. It is feasible to set up insurance populations as species are kept and bred in EAZA and some species are commercially bred. Project Parosphromenus is furthermore breeding 20-30 species. Their small and attractive appearance gives them the potential for an exhibit role. The TAG intends to establish and formalise insurance populations for those in need that are not already covered by the hobby/commercial breeders.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Exhibit: Gouramies contains many attractive species that could fulfil this non-conservation role. Furthermore, it could serve to bring specific educational messages (eg.: *Osphronemidae* biology).

Programme decision statement

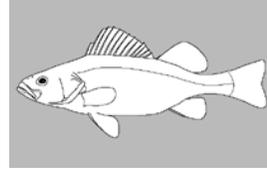
EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the *ex situ* management roles selected for *Osphronemidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=429>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Perches

Percidae

Status in the wild

Family information from FishBase.

Genera: 11
Species: 239

Range description

Northern Hemisphere.

Ex situ information

None are in the aquarium trade. Maximum length up to 100 cm TL.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.678	678	34

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	9
Agriculture & aquaculture	12
Energy production & mining	16
Transportation & service corridors	10
Biological resource use	2
Human intrusions & disturbance	1
Natural system modifications	90
Invasive & other problematic species, genes & diseases	22
Pollution	83
Geological events	-
Climate change & severe weather	6
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	1
Extinct in the Wild	-
Critically Endangered	10
Endangered	18
Vulnerable	30
Near Threatened	18
Least Concern	144
Data Deficient	4
Total on Red List*	225
with IUCN mandate for <i>ex situ</i> conservation	7

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Many species have been assessed as threatened in this family. Some of them are from North America and therefore not under the RCP's remit. There is ongoing conservation work by the USA for their native darter species and in range conservationists are considered to be better situated to look after those species than the EAZA region. Moreover, there is one Mexican species known to be located in a protected area (*Cuatro cienagas*). The TAG decided to focus on the European species. Some species are endemic to (larger) European rivers. the benefit of having an insurance population for some of these species is considered as high.

Whether it is feasible to set up these insurance populations, is unclear, since the family is not found in the trade. AQUATIS is initiating a project to provide source populations of the CR species *Zingel asper* for reintroduction in Europe. In the future, multiple species in Europe can be added to the project based on conservation needs and availability.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Population restoration: This direct conservation would focus on re-establishing the species to part of its former range from which it has been extirpated. This role implies providing disease-free, behaviourally competent and genetically valuable individuals for release into the wild. Of course, this would imply to ensure that any reintroductions are done according to the IUCN Reintroduction guidelines and to avoid any releases that may cause hybridisation in the wild.

Programme decision statement

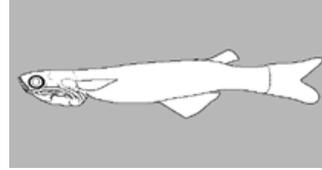
EEP. Proactive management and coordination along a clear strategy among all the holders will be required to deliver the EAZA contributions to the *ex situ* management roles selected for *Percidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=306>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Priapiumfishes
Phallostethidae



Status in the wild

Family information from FishBase.

Genera: 4
Species: 23

Range description

Southeast Asia.

Ex situ information

None are in the aquarium trade. Up to about 4 cm length.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	1
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	1
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	4
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There are a few threatened species in this family. The TAG thinks it is possible that many species are already extinct or heading towards extinction unnoticed. . There is very little attention given to the family in the wild and no known party interested in conservation actions.

Therefore, the benefit of having an insurance population for the species is high.

The family has a potential exhibit and education role from its intriguing biology (morphology, breeding system) but this can be challenging with the fish being only ~2cm long and living in brackish water. It seems feasible to set up insurance populations as they have been bred in EAZA before. It is possible to acquire specimens but capacity within EAZA to work on it is unknown. The family is recommended as priority for ark/insurance populations.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance/Ark: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions. This role would be more an Ark role to those species within this family that are already facing extinction. After reintroduction of those populations have taken place, they will still be needed as insurance populations to evaluate whether reintroduction has been successful.

Exhibit/Education: Priapiumfishes contains many interesting species from a biological perspective that could fulfil this non-conservation role. Furthermore, it could serve to bring specific educational messages on their biology.

Programme decision statement

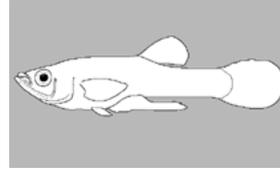
EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the selected roles for *Phallostethidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=221>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Poeciliids

Poeciliidae

Status in the wild

Family information from FishBase.

Genera: 44
Species: 349

Range description

Low altitudes from eastern United States to north-eastern Argentina; also in Africa and Madagascar. Reported to occur in salt waters in coastal areas, but only one species lives in true marine waters.

Ex situ information

Many are in the aquarium trade. Small bodied, 2-20 cm SL.
Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
31.30.432896	432957	161

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	19
Agriculture & aquaculture	19
Energy production & mining	17
Transportation & service corridors	4
Biological resource use	37
Human intrusions & disturbance	7
Natural system modifications	43
Invasive & other problematic species, genes & diseases	24
Pollution	57
Geological events	-
Climate change & severe weather	10
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	4
Extinct in the Wild	2
Critically Endangered	4
Endangered	12
Vulnerable	16
Near Threatened	5
Least Concern	82
Data Deficient	51
Total on Red List*	176
with IUCN mandate for <i>ex situ</i> conservation	3

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes many threatened species, three of them with an *ex situ* mandate.

Insurance and Ark populations are already in place for several of the Poeciliid species kept and bred in EAZA institutions.

However, before establishing an active management of the relevant species, it is imperative to find some clarity on the taxonomy given the recent split of the family.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, the following action was identified: Investigate taxonomy after recent split of family.

Insurance/Ark: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions. This role would be more an Ark role to those species within this family that are already facing extinction. After reintroduction of those populations have taken place, they will still be needed as insurance population to evaluate whether reintroduction has been successful.

Research: This role would focus on different types of research such as disease management, population management, reproductive biology.

Programme decision statement

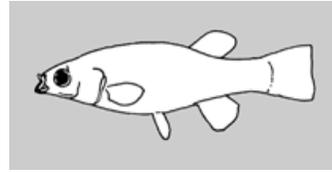
EEP. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family without additional taxonomical information. However, the TAG agreed on manage actively the family, recommending therefore the family to be listed as EEP.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=216>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Middle American killifishes
Profundulidae



Status in the wild

Family information from FishBase.

Genera: 1
Species: 9

Range description

Atlantic and Pacific slopes of Middle America in Mexico, Guatemala, and Honduras.

Ex situ information

Some are in the aquarium trade.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	1
Near Threatened	-
Least Concern	2
Data Deficient	3
Total on Red List*	7
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	1
Natural system modifications	2
Invasive & other problematic species, genes & diseases	2
Pollution	2
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale

Workshop Discussion: Two of the seven assessed species are threatened. There are options to acquire species from Mexico.

The family is not kept in Europe but the expertise to breed them is available and some are found in the trade. Establishing insurance populations was considered feasible.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Programme decision statement

EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the insurance role selected for *Profundulidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=569>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Blue eyes
Pseudomugilidae

Status in the wild

Family information from FishBase.

Genera: 4
Species: 18

Range description

New Guinea and adjacent islands, northern and eastern Australia, and parts of eastern Indonesia.

Ex situ information

Some are in the aquarium trade.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
4.4.181	189	11

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	2
Energy production & mining	2
Transportation & service corridors	1
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	2
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

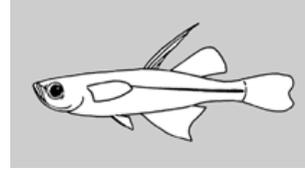


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	1
Vulnerable	2
Near Threatened	2
Least Concern	2
Data Deficient	1
Total on Red List*	8
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes several threatened species. The benefit of having an insurance population for some of these species is high.

EAZA has the expertise to keep and breed species in this family and some species are common in the trade, but it is unclear if this includes the threatened species. Therefore, establishing insurance populations is considered feasible.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Programme decision statement

EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the insurance role selected for *Pseudomugilidae*. Therefore, the TAG recommends to actively manage it as EEP.

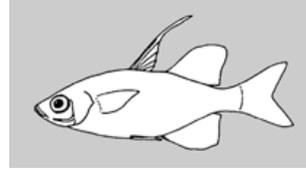
References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=565>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Sailfin silversides

Telmatherinidae



Status in the wild

Family information from FishBase.

Genera: 5
Species: 18

Range description

Sulawesi and the islands of Misool and Batanta off western New Guinea.

Ex situ information

Some are in the aquarium trade.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
3.3.96	102	4

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	2
Vulnerable	1
Near Threatened	7
Least Concern	-
Data Deficient	1
Total on Red List*	11
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	9
Invasive & other problematic species, genes & diseases	9
Pollution	9
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale

Workshop Discussion: All assessed species are from Sulawesi, Indonesia three of which are threatened including one with an *ex situ* mandate (*Marosatherina ladigesii*). Therefore, the benefit of having an insurance population for the threatened species (excluding Australian species) is high.

Some are common in the trade including *M. ladigesii* and some are kept and bred in EAZA including some of the threatened species. The family has short generation times with continuous spawning. Their small and attractive appearance gives them the potential for an exhibit role. These species could also function as model species for related species.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Exhibit: the sailfin silversides family has interesting small and attractive species and could contribute to bring a message about natural history.

Model: This family contain species that are considered easy to hold and to breed. Therefore, those could be used as a model species for related species that are not kept yet but expected to require *ex situ* conservation in the future.

Programme decision statement

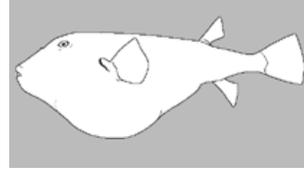
EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the roles selected for *Telmatherinidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=567>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Puffers

Tetraodontidae

Status in the wild

Family information from FishBase.

Genera: 29
Species: 200

Range description

Tropical and subtropical areas of Atlantic, Indian and Pacific.

Ex situ information

Many are in the aquarium trade. Attains 90 cm maximum length. European Community legislation prohibits trading with puffer fish products.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.2.219	221	39

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	84
Agriculture & aquaculture	41
Energy production & mining	-
Transportation & service corridors	2
Biological resource use	85
Human intrusions & disturbance	-
Natural system modifications	13
Invasive & other problematic species, genes & diseases	22
Pollution	91
Geological events	-
Climate change & severe weather	83
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	2
Near Threatened	1
Least Concern	28
Data Deficient	4
Total on Red List*	176
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: This family includes a few threatened species. The Malabar puffer (*Carinotetraodon travancoricus*) is threatened by capture for the aquarium trade. As the commercial trade mainly takes specimens from the wild, EAZA cannot assume that the commercial interest in the species will keep it safe from extinction. Therefore, the benefit of having an insurance population for the threatened freshwater species that can be acquired is high.

Their small and attractive appearance gives them the potential for an exhibit role. The TAG identified the need to acquire the relevant husbandry expertise to breed Malabar puffer. EAZA institutions are keeping and breeding puffers, including one of the two threatened species (according to ZIMS). Therefore, the feasibility of establishing an insurance role is high.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, the following actions were identified: Investigate composition of EAZA collections, threat status and conservation needs in the wild.

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Education: The Puffer family contains many small and attractive species that could serve to bring specific educational messages (e.g.: Very specialised animals, behaviour, anatomy, ecology unique to this family, some puffers are threatened and can bring a conservation lesson).

Husbandry training: There is need to acquire the relevant husbandry expertise to breed Malabar puffer. This role would focus on improving the husbandry skills of the holders and would contribute as a first step to create best practice guidelines.

Programme decision statement

EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the actions and roles selected for *Tetraodontidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=448>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Mudminnows

Umbridae

Status in the wild

Family information from FishBase.

Genera: 3

Species: 7

Range description

Many areas above 20 deg. in the Northern Hemisphere.

Ex situ information

Some are in the aquarium trade. Attains 33 cm TL

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	1
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	1
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

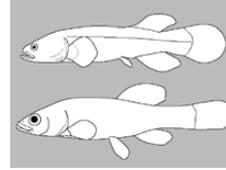


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	4
Data Deficient	-
Total on Red List*	5
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There are six species from the USA which are outside the remit of the RCP. *Umbra krameri* is the only species in Europe and listed as VU due to habitat loss (from river regulation and wetland drainage). It is found only in limited and fragmented habitats. There are ongoing conservation efforts in several range countries. The benefit and feasibility of an insurance role is high as Vienna is already involved in a conservation project by keeping and breeding a population. It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Programme decision statement

EEP. Proactive management and coordination along with a clear strategy among all the holders will be required to deliver the EAZA contributions to the insurance role selected for *Umbridae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=75>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Toothcarps

Valenciidae

Status in the wild

Family information from FishBase.

Genera: 1

Species: 3

Range description

South-eastern Spain, Italy, and western Greece.

***Ex situ* information**

None are in the aquarium trade.

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
1.1.181	183	5

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	1
Pollution	1
Geological events	-
Climate change & severe weather	2
Other options	-

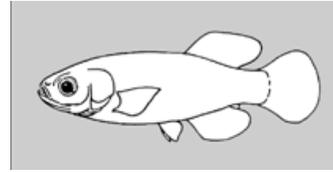


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Two of three species in this family are assessed by the IUCN. Both are CR and threatened by among others invasive species, climate change and pollution. There is an *in situ* project in Greece (with Bristol Zoological Society involvement) and an EU Life funded project in Spain conducting translocations, habitat monitoring and eDNA research. Based on the threat status and the situation *in situ*, the benefit of having an insurance population for these species is high. The feasibility of insurance populations is high because both assessed species are kept and bred in EAZA. ZSL is already involved in the project work by keeping *ex situ* populations. It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Research: This role would focus on different types of research such as disease management, population management, reproductive biology.

Programme decision statement

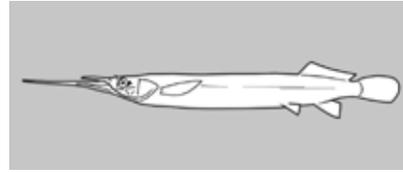
EEP. Proactive management and coordination along a clear strategy among all the holders will be required to deliver the EAZA contributions to the insurance role selected for *Valenciidae*. Therefore, the TAG recommends to actively manage it as EEP.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=571>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Halfbeaks (freshwater)
Zenarchopteridae



Status in the wild

Family information from FishBase.

Genera: 5
Species: 63

Range description

NA

Ex situ information

Unknown numbers in aquarium trade.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	4
Near Threatened	4
Least Concern	11
Data Deficient	7
Total on Red List*	39
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family is facing various threats including invasive species, run-off, volcanoes, habitat loss and pollution. Therefore, the benefit of having an insurance population for some of these species is high. Furthermore, there are opportunities for fundamental research into their breeding system and morphology (olfactory system).

Whether it is feasible to set up these insurance populations, is unclear. Some of the species are kept in EAZA institutions including the only one with an *ex situ* mandate. There are organised hobby groups at least in the UK and Germany.

It was decided that this family would benefit from active management to fulfil its potential insurance role by maintaining populations of the relevant species.

Roles and actions identified

Insurance: This direct conservation role contemplates the possibility to maintain long-term *ex situ* populations to preserve options for the future. The *ex situ* populations are a potential future source to build up (long-term) populations for reintroductions.

Research: This role would focus on fundamental research such as investigating their breeding system and the morphology (olfactory system).

Programme decision statement

EEP. Proactive management and active coordination along a clear plan among all the holders will be required to deliver the EAZA contributions to the *ex situ* management roles selected for *Zenarchopteridae*. Therefore, the TAG recommends to actively manage it as EEP.

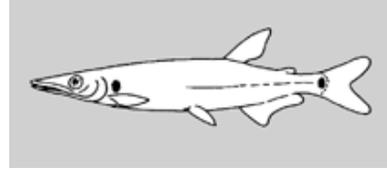
References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=694> (Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

RCP Category: Mon-T

Smallscale pike characins

Acestrorhynchidae

Status in the wild

Family information from FishBase.

Genera: 7
Species: 26

Range description

Entirely confined to South America and the greatest species diversity occurs in the Amazon and Orinoco basins. Three species occur further south in the São Francisco, Paraná, Paraguay and La Plata drainages.

Ex situ information

Unknown numbers in aquarium trade. Not commercially important as food fishes and two of the smallest species might be eventually found in aquarium shops.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-,-,-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: No species has been assessed as threatened. They are kept and bred in captivity. Based on the available information, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!D=593>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Sturgeons

Acipenseridae

Status in the wild

Family information from FishBase.

Genera: 4
Species: 25

Range description

Cold to temperate waters of the Northern Hemisphere.
Anadromous or restricted to freshwater.

***Ex situ* information**

Some are in the aquarium trade. Attain 4.2 m or longer.
Important for their meat and roe.

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
2.2.274	278	72

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	9
Agriculture & aquaculture	7
Energy production & mining	4
Transportation & service corridors	13
Biological resource use	24
Human intrusions & disturbance	1
Natural system modifications	25
Invasive & other problematic species, genes & diseases	17
Pollution	23
Geological events	1
Climate change & severe weather	4
Other options	6

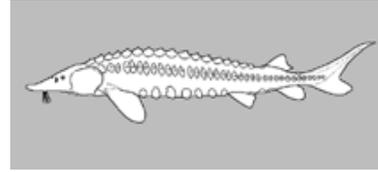


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	16
Endangered	2
Vulnerable	3
Near Threatened	2
Least Concern	2
Data Deficient	-
Total on Red List*	25
with IUCN mandate for <i>ex situ</i> conservation	11

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The adult fish of this family become too large to be kept in most aquaria. Nevertheless, a few holders participate in reintroduction projects by keeping headstarter populations. Though more often educational activities are conducted to support the conservation of the family. Active management by the EAZA community is not needed and/or realistic at this time, although there may be localised opportunities for some institutions to partner with national initiatives as is done in the USA.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, despite not having determined any roles, the following action was identified: Investigate options for educational programmes and raising awareness.

Programme decision statement

Mon-T. The TAG will work on the identified action through a champion, and agreed to manage the family at a lower intensity level. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=32>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Loach catfishes

Amphiliidae

Status in the wild

Family information from FishBase.

Genera: 13
Species: 98

Range description

Africa. Usually restricted to high altitude streams.

Ex situ information

None are in the aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	3
Agriculture & aquaculture	11
Energy production & mining	28
Transportation & service corridors	5
Biological resource use	25
Human intrusions & disturbance	-
Natural system modifications	10
Invasive & other problematic species, genes & diseases	2
Pollution	35
Geological events	-
Climate change & severe weather	1
Other options	-

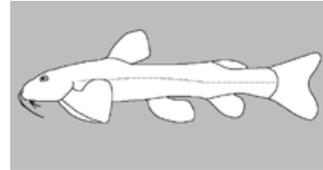


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	4
Vulnerable	9
Near Threatened	1
Least Concern	34
Data Deficient	27
Total on Red List*	75
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Several species of the family are in high risk categories and there is an IUCN mandate for education and awareness. Only one species has ever been bred in EAZA. There is not enough information available to make them a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=136>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Climbing gouramies

Anabantidae

Status in the wild

Family information from FishBase.

Genera: 4
Species: 33

Range description

Africa and India to Philippines.

Ex situ information

Some are in the aquarium trade.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.149	149	13

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	3
Agriculture & aquaculture	5
Energy production & mining	5
Transportation & service corridors	-
Biological resource use	15
Human intrusions & disturbance	-
Natural system modifications	3
Invasive & other problematic species, genes & diseases	2
Pollution	7
Geological events	-
Climate change & severe weather	-
Other options	1

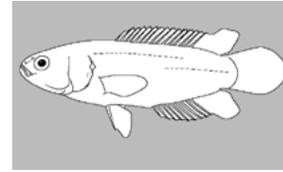


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	1
Near Threatened	-
Least Concern	19
Data Deficient	7
Total on Red List*	28
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There are two threatened species in the family, one of which with an *ex situ* mandate (*Sandelia bainsii*). The benefit of having an insurance population for the species is high. However, its range lies in South Africa and attempts to get fish from there have been unsuccessful in the past.

If the acquisition of specimens can be arranged, the feasibility of an insurance population is high. The other threatened species (*Ctenopoma nebulosum*) as well as another *Sandelia* species are kept and bred in EAZA institutions.

Roles and actions identified

Identified Actions: Before start working on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, despite not having determined any roles, the following action was identified: Determine if any of the threatened species (with a mandate) are kept. If so, it is recommended to establish a programme.

Programme decision statement

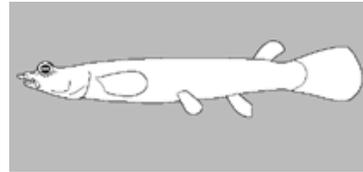
Mon-T. The TAG will work on the identified action through a champion to determine if any of the threatened species (with a mandate) are kept. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=426>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Four-eyed fishes, onesided livebearers & white-eye
Anablepidae



Status in the wild

Family information from FishBase.

Genera: 3
Species: 18

Range description

From southern Mexico to southern South America.

Ex situ information

Some are in the aquarium trade. Maximum length 32 cm in *Anablepinae*, 12 cm in *Jenynsiinae*.

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
4.14.190	208	13

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale

Workshop Discussion: The species are commonly bred, but none are threatened.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

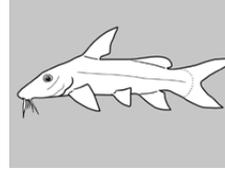
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=214>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Vaonas
Anchariidae



Status in the wild

Family information from FishBase.

Genera: 2
Species: 6

Range description

NA

Ex situ information

Unknown numbers in aquarium trade.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	6
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	3
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	2
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	4
Total on Red List*	7
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There are two endangered species but none with a mandate. Based on the available information, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

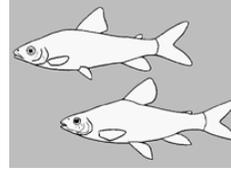
References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!D=660>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Headstanders

Anostomidae



Status in the wild

Family information from FishBase.

Genera: 15
Species: 158

Range description

South America, except east Andes.

Ex situ information

Some are in the aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.305	305	49

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	3
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	5
Invasive & other problematic species, genes & diseases	-
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	13
Data Deficient	2
Total on Red List*	16
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes one vulnerable species. There is sufficient husbandry expertise to keep and breed some species of this family. As the family is important for the fishery industry and the aquarium trade, it is not a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

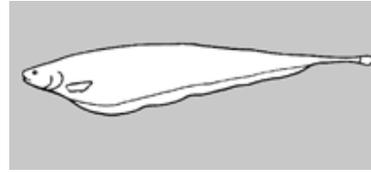
References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=559>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Ghost knifefishes

Apteronotidae



Status in the wild

Family information from FishBase.

Genera: 15
Species: 89

Range description

Humid Neotropics, ranging the Rio de la Plata of Argentina to the Rio Tuira of Panama. Known from the continental waters of all South American countries except Chile, and are most diverse - both taxonomically and ecologically - in the Amazon basin.

Ex situ information

Some are in the aquarium trade. Substantial diversity in total adult body size, ranging from about 160 mm to 1.3m. Little direct commercial exploitation of Apteronotid species. Two species are common in the aquarium trade. Apteronotids are not an important food resource.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.81	81	18

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	2
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	9
Data Deficient	4
Total on Red List*	14
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes one vulnerable species with a very restricted range in Columbia. Columbia commercially exports fish but this species has not been seen in the trade yet. Captive breeding has been reported but there is otherwise not enough information available to make the family a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

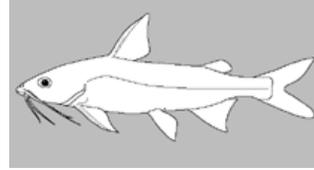
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=545>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Sea catfishes

Ariidae

Status in the wild

Family information from FishBase.

Genera: 30

Species: 153

Range description

Tropical and subtropical waters. Chiefly marine; occasionally freshwater.

Ex situ information

None are in the aquarium trade.

Table 2 Number of individuals according to ZIMS**[^]

M.F.U.	Total	Number of species
0.0.46	46	5

**The current information from ZIMS is incomplete

[^] Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	9
Agriculture & aquaculture	1
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	31
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	2
Pollution	10
Geological events	-
Climate change & severe weather	2
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	1
Vulnerable	3
Near Threatened	2
Least Concern	24
Data Deficient	12
Total on Red List*	64
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Part of the life cycle of this family is in saltwater, making it impossible to breed. There is not enough husbandry expertise available to make them a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

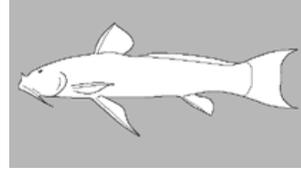
Mon-T DNO. Given the lack of roles and actions, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends this family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=145>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Naked sucker-mouth catfishes

Astroblepidae

Status in the wild

Family information from FishBase.

Genera: 1
Species: 67

Range description

South America (Andean region) and Panama. Some species live in torrential mountain streams and climb the faces of waterfalls.

Ex situ information

None are in the aquarium trade. Maximum length about 30 cm.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	3
Energy production & mining	6
Transportation & service corridors	1
Biological resource use	8
Human intrusions & disturbance	-
Natural system modifications	3
Invasive & other problematic species, genes & diseases	9
Pollution	19
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	-
Vulnerable	4
Near Threatened	5
Least Concern	12
Data Deficient	24
Total on Red List*	47
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Several species of the family are threatened but none are kept in EAZA according to ZIMS. There is not enough husbandry expertise available to make them a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T DNO. Despite having listed 2 species in this family as Critically Endangered and 4 Vulnerable, no roles were identified for *Astroblepidae*. Therefore, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends this family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=158>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Silversides

Atherinidae

Status in the wild

Family information from FishBase.

Genera: 14

Species: 71

Range description

From tropical to temperate waters. Most species are marine. However, there are about 50 species confined to freshwater and others that enter freshwater.

***Ex situ* information**

Some are in the aquarium trade. Reported maximum length 60 cm.

Table 2 Number of individuals according to ZIMS**[^]

M.F.U.	Total	Number of species
0.0.60	60	2

**The current information from ZIMS is incomplete

[^] Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	10
Human intrusions & disturbance	-
Natural system modifications	10
Invasive & other problematic species, genes & diseases	8
Pollution	9
Geological events	-
Climate change & severe weather	2
Other options	-

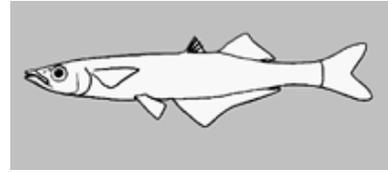


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	5
Endangered	2
Vulnerable	4
Near Threatened	9
Least Concern	7
Data Deficient	4
Total on Red List*	35
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes several threatened species one of which with an *ex situ* mandate (*Poblana squamata*). There are no conservation actions in place. The TAG sees the need for captive breeding, but the fish are highly susceptible to transport. Further attempts of transporting them to Europe may be done in the coming years but it is currently not possible and therefore no priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

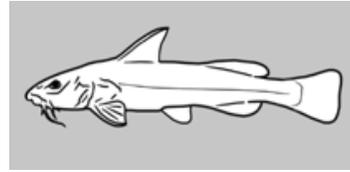
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=218>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Austroglanids
Austroglanididae



Status in the wild

Family information from FishBase.

Genera: 1
Species: 3

Range description

Southern Africa.

***Ex situ* information**

Unknown numbers in aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	2
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	3
Invasive & other problematic species, genes & diseases	2
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	1
Least Concern	1
Data Deficient	-
Total on Red List*	3
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: All species are found in South Africa, but none are kept in aquaria as far as the TAG knows. Any attempts to get fish from South Africa were unsuccessful in the past. Therefore, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

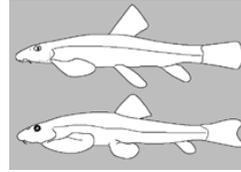
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=643>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

River loaches

Balitoridae

Status in the wild

Family information from FishBase.

Genera: 34
Species: 202

Range description

Eurasia

Ex situ information

Unknown numbers in aquarium trade.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.395	395	23

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	7
Agriculture & aquaculture	13
Energy production & mining	6
Transportation & service corridors	-
Biological resource use	32
Human intrusions & disturbance	3
Natural system modifications	30
Invasive & other problematic species, genes & diseases	4
Pollution	61
Geological events	1
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	7
Vulnerable	9
Near Threatened	7
Least Concern	38
Data Deficient	49
Total on Red List*	112
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The taxonomy of the family is somewhat unclear. According to the current IUCN classification there are several threatened species and many are listed by ASAP (Asian Species Action Partnership). They can be kept and bred in aquaria and many species are found in the trade. The TAG decided to wait for the outcome of the actions before determining the management level of the family. If management is considered necessary, the TAG agreed to prioritise European species.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, despite not having determined any roles, the following action was identified: Investigate taxonomy and required conservation actions.

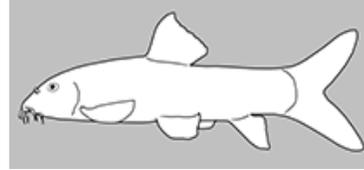
Programme decision statement

Mon-T. The TAG will work on the identified action through a champion to determine the taxonomy of the family and to investigate if there are further conservation actions required. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level, and willing to re-assess the status in the future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=126>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Botiidae***Botiidae**

Status in the wild

Family information from FishBase.

Genera: 1
Species: 10

Range description

NA

Ex situ information

Unknown numbers in aquarium trade.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	3
Agriculture & aquaculture	-
Energy production & mining	3
Transportation & service corridors	-
Biological resource use	7
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	1
Near Threatened	-
Least Concern	3
Data Deficient	2
Total on Red List*	7
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes two threatened species. Some species are common in the commercial trade. Most of them are bred in larger ornamental trade hatcheries in Asia where it is common practice to stimulate breeding with hormones. The TAG has no links to *in situ* conservation work. There is not enough information available on the situation in the wild to make decisions for *ex situ* management. The TAG decided to wait for the outcome of the actions before determining the management level of the family.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, despite not having determined any roles, the following action was identified: Investigate about the family's status and conservation needs.

Programme decision statement

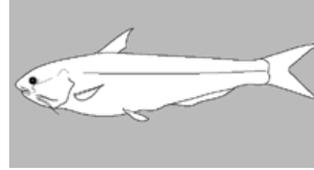
Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=696>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Whale catfishes
Cetopsidae



Status in the wild

Family information from FishBase.

Genera: 5
Species: 42

Range description
South America.

Ex situ information
None are in the aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.4	4	1

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	2
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	2
Least Concern	4
Data Deficient	2
Total on Red List*	8
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: None of the species are assessed as threatened. Members of the family are regularly imported but not easy to keep due to a lack of husbandry expertise. Some are known to be parasitic and feed on gills. There is not enough information available to make them a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

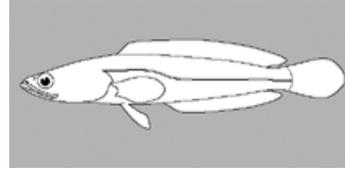
Mon-T DNO. Given the lack of roles and actions, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends this family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!ID=154>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Snakeheads

Channidae

Status in the wild

Family information from FishBase.

Genera: 2
Species: 42

Range description

Tropical Africa (three species) and southern Asia.

***Ex situ* information**

Some are in the aquarium trade. About 1.2 m maximum length. Important in aquaculture and commonly used in rice-fish farming. Some species are widely introduced.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.30	30	9

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	6
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	5
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	2
Least Concern	16
Data Deficient	4
Total on Red List*	23
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: This family includes one Vulnerable species but also several invasive alien species that are widely found in trade. As a result, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

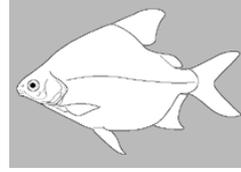
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!D=431>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Lutefishes

Citharinidae

Status in the wild

Family information from FishBase.

Genera: 3

Species: 8

Range description

Africa

Ex situ information

Some are in the aquarium trade.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.269	269	22

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	1
Pollution	3
Geological events	-
Climate change & severe weather	1
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	1
Least Concern	5
Data Deficient	-
Total on Red List*	6
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: No species has been assessed as threatened. They are rarely available in trade and no breeding has been reported. Based on the available information, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

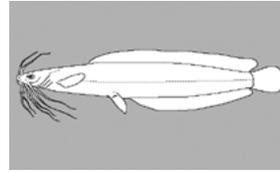
References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=116>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Airbreathing catfishes

Clariidae



Status in the wild

Family information from FishBase.

Genera: 16
Species: 116

Range description

Africa, Syria and southern and western Asia (Philippines to Java).

Ex situ information

Some are in the aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.30	30	12

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	8
Agriculture & aquaculture	22
Energy production & mining	17
Transportation & service corridors	3
Biological resource use	37
Human intrusions & disturbance	-
Natural system modifications	18
Invasive & other problematic species, genes & diseases	8
Pollution	23
Geological events	1
Climate change & severe weather	3
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	6
Endangered	4
Vulnerable	6
Near Threatened	4
Least Concern	58
Data Deficient	17
Total on Red List*	95
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes several highly threatened species. One of those (*Clarias magur*) has an *ex situ* mandate for captive breeding and genome banking and the urgent need to research on the threat impact (among others from overfishing). Currently it is widely distributed over Bangladesh and migrates between muddy ponds and rivers. The potential for *in situ* work was identified but there are no contacts in place. Therefore, the TAG is not able to contribute to this species at the moment. Research is needed first to see if *in situ* connections can be established. The family is often overlooked for conservation because some of its species are invasive. The aquaculture industry is keeping and breeding numerous species of the family and is therefore better suited to conserve them. The fish are challenging for mixed exhibits because they eat any fish smaller than themselves. Numbers in public aquaria are unknown because the taxonomy is not recognised by ZIMS.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, despite not having determined any roles, the following action was identified: Investigate the possibility to establish *in situ* connections.

Programme decision statement

Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

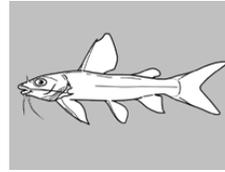
References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=139>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Claroteid catfishes

Claroteidae



Status in the wild

Family information from FishBase.

Genera: 15
Species: 82

Range description

African Siluriformes family.

Ex situ information

Some are in the aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	4
Agriculture & aquaculture	3
Energy production & mining	13
Transportation & service corridors	3
Biological resource use	20
Human intrusions & disturbance	1
Natural system modifications	13
Invasive & other problematic species, genes & diseases	1
Pollution	28
Geological events	-
Climate change & severe weather	4
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	6
Vulnerable	10
Near Threatened	-
Least Concern	45
Data Deficient	12
Total on Red List*	73
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There are several threatened species in the family but they are not kept and not known to have ever been imported. Some other species are kept for human consumption. This family is not a priority for this RCP, because they are large-bodied species and there is little information on how to keep a population.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T DNO. Despite having listed 6 species as Endangered and 10 Vulnerable, there was no roles identified for *Claroteidae*. Moreover, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends the family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!ID=668>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Sculpins *Cottidae*

Status in the wild

Family information from FishBase.

Genera: 62
Species: 257

Range description

Northern Hemisphere and near New Zealand.

Ex situ information

Some are in the aquarium trade. Max length: Reaches about 78 cm maximum length in one species.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.173	173	13

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	3
Energy production & mining	1
Transportation & service corridors	4
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	17
Invasive & other problematic species, genes & diseases	5
Pollution	21
Geological events	-
Climate change & severe weather	4
Other options	-

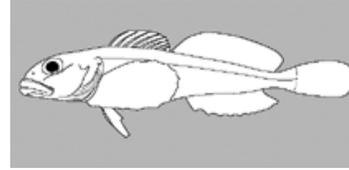


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	1
Extinct in the Wild	-
Critically Endangered	2
Endangered	-
Vulnerable	4
Near Threatened	4
Least Concern	38
Data Deficient	4
Total on Red List*	68
with IUCN mandate for ex situ conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There are several threatened species in the family, three of which are found in Europe; one CR (*Cottus rondeleti*) from southern France and two VU (*C. scaturigo* and *C. petiti*). The TAG thinks that it is possible for some of these species to be lost in the wild. Therefore, the benefit of having an insurance population for the species is high. Nevertheless, the feasibility of an insurance population has to be determined. None of the three threatened European species is kept in EAZA according to ZIMS but a related species is successfully bred. The species inhabit streams which are difficult to recreate in *ex situ* facilities. The TAG therefore evaluated that breeding would be challenging but possible. It was concluded that if *ex situ* conservation is required, insurance populations of the European species could be established.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, despite not having determined any roles, the following action was identified: Determine status of *Cottus rondeleti* in France, if any work is already happening in the field and whether any further action is required.

Programme decision statement

Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=277>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Toothless characins

Curimatidae

Status in the wild

Family information from FishBase.

Genera: 8
Species: 106

Range description

Southern Central America and South America. Trans-Andean Pacific Ocean drainages from southwestern Costa Rica to north-western Peru, Trans-Andean Caribbean versant drainages from the Atrato River of north-western Colombia to the western drainages of the Lago Maracaibo basin in north-western Venezuela. East of the Andean Cordilleras, most river basins from the Río Orinoco system to slightly south of Buenos Aires, Argentina.

Ex situ information

Some are in the aquarium trade. Maximum length 45 cm. During their annual mass migrations various species of this family are exploited in commercial and subsistence fisheries in South America. They are food items for large, commercially important, predatory fish species.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.103	103	19

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	3
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	3
Invasive & other problematic species, genes & diseases	1
Pollution	4
Geological events	-
Climate change & severe weather	-
Other options	-

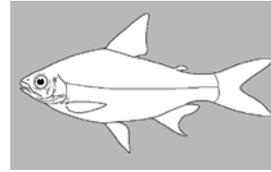


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	3
Least Concern	8
Data Deficient	1
Total on Red List*	13
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes one endangered species (*Pseudocurimata patiae*) from Colombia. Most other species are from Brazil and used for (human) consumption. Some of the large species are used in aquaculture. Some are found in the trade, but not very commonly. They have been previously excluded from trade and were challenging to acquire. Therefore, the level of knowledge on husbandry and ecology is unknown. The TAG decided against active management of the endangered species at the moment because it is difficult to keep and breed.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

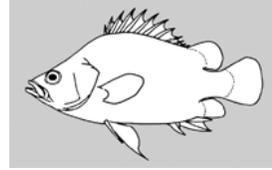
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=111>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Freshwater tripletails

Datnioididae

Status in the wild

Family information from FishBase.

Genera: 1

Species: 5

Range description

From India to Borneo in fresh and brackish waters.

***Ex situ* information**

Some are in the aquarium trade.

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.35	35	8

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	3
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: This is a small family with, one VU and one CR species (*Datnioides pulcher*) with an *ex situ* mandate. Several species are included on the ASAP (Asian Species Action Partnership) list. Therefore, the benefit of having an insurance population for the species is high. However, whether it is feasible to set up an insurance population of *D. pulcher*, is still unclear. It has been seen in the trade but captive breeding attempts in Thailand were unsuccessful so far. So breeding was considered challenging. At least six EAZA holders keep species of the family. Based on the experience with other species it was considered worthwhile to explore the possibilities of keeping the CR species as well.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, despite not having determined any roles, the following action was identified: Research on (artificial) breeding techniques.

Programme decision statement

Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed on manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

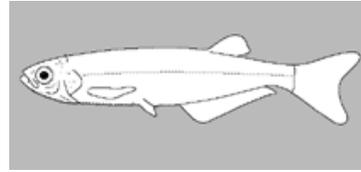
References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=586>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Denticle herrings

Denticipitidae



Status in the wild

Family information from FishBase.

Genera: 1

Species: 1

Range description

Southwest Nigeria.

Ex situ information

None are in the aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: According to FishBase, this family only consists of one species which is assessed as VU by the IUCN. There is not enough information available to make them a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T DNO. Despite having listed 1 species as Vulnerable, there was no roles identified for *Denticipitidae*. Moreover, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends the family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=42>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Sleepers

Eleotridae

Status in the wild

Family information from FishBase.

Genera: 34

Species: 179

Range description

Circumglobal of most tropical and subtropical areas; rare in temperate areas.

Ex situ information

Some are in the aquarium trade. Maximum length about 60 cm reported in one species.

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
8.10.150	168	16

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	17
Agriculture & aquaculture	14
Energy production & mining	4
Transportation & service corridors	1
Biological resource use	16
Human intrusions & disturbance	5
Natural system modifications	13
Invasive & other problematic species, genes & diseases	7
Pollution	12
Geological events	-
Climate change & severe weather	-
Other options	-

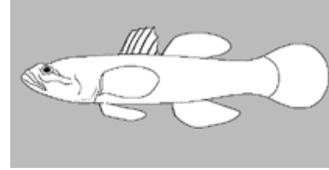


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	4
Endangered	2
Vulnerable	4
Near Threatened	10
Least Concern	46
Data Deficient	17
Total on Red List*	78
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family contains several threatened species. Many Australian zoos are already involved in conservation of the in-range species. Those are not under the remit of this RCP. The benefit of an insurance population depends on the outcome of the proposed action.

There are differences in the level of husbandry complexity required to maintain species of the family. The feasibility on keeping (insurance) populations would depend on the species selected.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, despite not having determined any roles, the following action was identified: Determine if any threatened species are from outside Australia and if it would be possible and feasible to manage them.

Programme decision statement

Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=404>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Ellopostomatidae****Ellopostomatidae***

Status in the wild

Family information from FishBase.

Genera: 1

Species: 2

Range description

NA

Ex situ information

Unknown numbers in aquarium trade.

Available to EAZA community: No?

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale

Workshop Discussion: The only of the assessed species (*Ellopostoma mystax*) is Endangered. It is not kept anywhere according to ZIMS. There is not enough husbandry expertise available to make them a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

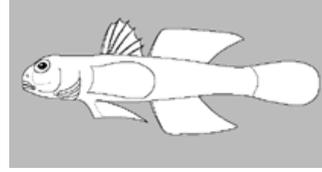
Mon-T DNO. Despite having listed 1 species as Endangered, there was no roles identified for *Ellopostomatidae*. Moreover, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends the family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=702>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Gobies

Gobiidae

Status in the wild

Family information from FishBase.

Genera: 258
Species: 1850

Range description

Mostly tropical and subtropical areas. Chiefly marine and brackish, some species are catadromous. Often the most abundant fish in freshwater on oceanic islands.

Ex situ information

Many are in the aquarium trade. Many are popular aquarium fishes.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
4.2.1085	1093	106

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	111
Agriculture & aquaculture	33
Energy production & mining	12
Transportation & service corridors	16
Biological resource use	85
Human intrusions & disturbance	7
Natural system modifications	74
Invasive & other problematic species, genes & diseases	64
Pollution	117
Geological events	2
Climate change & severe weather	38
Other options	2

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	15
Endangered	17
Vulnerable	16
Near Threatened	19
Least Concern	193
Data Deficient	105
Total on Red List*	894
with IUCN mandate for <i>ex situ</i> conservation	6

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes many threatened species, six of which have an *ex situ* mandate. Some species are reported as invasive to others. Multiple European species seem to be threatened (e.g. one in Ukraine) so the TAG decided to prioritise those. The benefit of having an insurance population for the threatened species is high and the TAG is already involved through ZSL in an *in situ* project in Greece. The feasibility of an insurance role is high because species of the family have been kept and bred in EAZA institutions. However, the TAG decided to wait for the outcome of the actions before determining the management level of the family.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, despite not having determined any roles, the following action was identified: Investigate European species status and decide if it is feasible to establish insurance populations.

Programme decision statement

Mon-T. The TAG will work on the identified action through a Working Group. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=405>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Naked-back knifefishes

Gymnotidae

Status in the wild

Family information from FishBase.

Genera: 2
Species: 41

Range description

Restricted to freshwaters of Central and South America.

Ex situ information

Some are in the aquarium trade. Maximum length 2.3 m.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

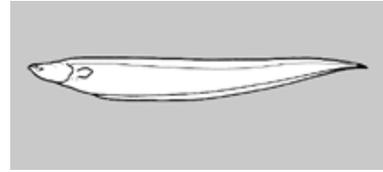
M.F.U.	Total	Number of species
0.0.1	1	1

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	3
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	1
Pollution	2
Geological events	-
Climate change & severe weather	-
Other options	-

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	1
Near Threatened	1
Least Concern	6
Data Deficient	-
Total on Red List*	9
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Few species of the family have been assessed, two of which as threatened. Some are kept in EAZA institutions which is currently not recorded in ZIMS because of a lack of taxonomic clarity (*Electrophoridae* are not recorded under this family). The TAG does not identify the need for an active management of this family.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

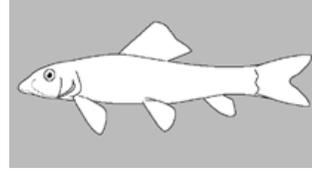
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=118>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Algae eaters
Gyrinocheilidae



Status in the wild

Family information from FishBase.

Genera: 1
Species: 3

Range description

Southeast Asia. Freshwater mountain streams.

Ex situ information

Some are in the aquarium trade. Maximum size 30 cm. Reared as aquarium fish.

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.122	122	14

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Specimens of this family are regularly acquired but none are assessed as threatened. Therefore, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

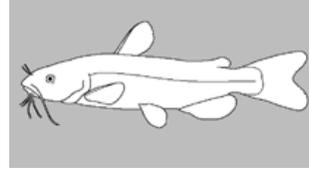
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!D=123>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

North American freshwater catfishes *Ictaluridae*



Status in the wild

Family information from FishBase.

Genera: 7
Species: 51

Range description

North America from southern Canada to Guatemala.

Ex situ information

Some are in the aquarium trade. About 1.6 m maximum length attained by 2 species.

Available to EAZA community: No

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.34	34	7

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	1
Extinct in the Wild	-
Critically Endangered	1
Endangered	6
Vulnerable	8
Near Threatened	4
Least Concern	25
Data Deficient	2
Total on Red List*	47
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	3
Agriculture & aquaculture	4
Energy production & mining	7
Transportation & service corridors	6
Biological resource use	5
Human intrusions & disturbance	-
Natural system modifications	24
Invasive & other problematic species, genes & diseases	7
Pollution	18
Geological events	-
Climate change & severe weather	2
Other options	-

Rationale

Workshop Discussion: The North American species of this family are not under the remit of this RCP. Four of the threatened species are from Mesoamerica (3 VU, 1 EN). It is only known from one N. America species to be exported. There is not enough information available to start active management of the threatened species.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

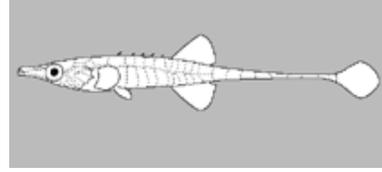
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=129>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Armoured sticklebacks

Indostomidae

Status in the wild

Family information from FishBase.

Genera: 1

Species: 3

Range description

Lake Indawgyi, upper Burma.

Ex situ information

None are in the aquarium trade. Reported maximum length 2.7 cm.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	1
Pollution	2
Geological events	-
Climate change & severe weather	1
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	1
Least Concern	1
Data Deficient	-
Total on Red List*	3
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There is one vulnerable species in the family (*Indostomus crocodilus*). The main threats include logging and climate change.

I. crocodilus has been kept and bred in the past. As a result, the feasibility of keeping a population is high. Based on the conservation status and husbandry expertise this species was selected for conservation management before it is too late. Yet it is unclear if there is a role or whether institutions already are working on this one. Depending on the outcome, the species would already benefit from a low intensity management. The species' attractive appearance gives it furthermore a potential exhibit role.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, despite not having determined any roles, the following actions were identified: Investigate further about *Indostomus crocodilus* and determine if the TAG has a significant role to play in its conservation. Find out if there are any Asian aquaria working with armoured sticklebacks.

Programme decision statement

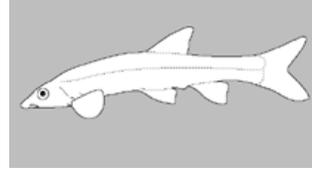
Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=205>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Shellears *Kneriidae*



Status in the wild

Family information from FishBase.

Genera: 4
Species: 30

Range description

Tropical Africa and Nile.

Ex situ information

None are in the aquarium trade. About 15 cm maximum length.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	5
Transportation & service corridors	-
Biological resource use	6
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	2
Pollution	5
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	4
Near Threatened	-
Least Concern	14
Data Deficient	12
Total on Red List*	31
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family contains a few threatened species. The Red List states that the one EN species from South Africa needs reintroduction (not necessarily *ex situ* management). There is in general not much known about this family. Captive breeding has been developed for the African mudfish (LC) and potentially others. There are many DD species which are in need for further investigation. However, some species' ranges lay in warzones making an EAZA involvement difficult. At the moment there are no direct leads if and how to investigate. This is therefore not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!ID=99>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Kryptoglanidae
Kryptoglanidae

Status in the wild

Family information from FishBase.

Genera: 1

Species: 1

Range description

Asia

Ex situ information

Unknown numbers in aquarium trade.

Available to EAZA community: ?

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale

Workshop Discussion: There is only one species listed in FishBase which is not assessed by IUCN. Its range lies in India but the conservation status is unknown. There is not enough information available to make this a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=706>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Chiapas catfishes

Lacantuniidae

Status in the wild

Family information from FishBase.

Genera: 1

Species: 1

Range description

North America, Mexico. Inhabits deep river channels and pools with rocks and strong eddy currents; sometimes taken in stream mouths.

Ex situ information

None are in the aquarium trade.

Available to EAZA community: ?

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	1
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

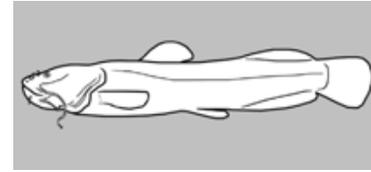


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There is only one VU species from Mexico with 90-100% of its population in a protected area. Therefore, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

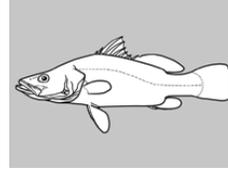
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=637>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Lates perches

Latidae

Status in the wild

Family information from FishBase.

Genera: 3
Species: 13

Range description

Africa, Indian and Pacific Ocean. Mainly freshwater.

Ex situ information

Unknown numbers in aquarium trade. Important food fishes.

Maximum length about 2 m.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	7
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	5
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	3
Vulnerable	2
Near Threatened	-
Least Concern	2
Data Deficient	1
Total on Red List*	8
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes a few threatened species. Two of the EN species are from Lake Tanganyika and Lake Albert respectively but their *in situ* status is unknown. One of the VU species is used in aquaculture in Japan and is therefore not under the remit of this RCP. None of the EN species are known to be kept at the moment. Based on experiences with cichlids, it is considered possible to acquire them. The Australian aquaculture industry has developed breeding techniques for some species. However, their large size makes it unfeasible to keep and breed them in a public aquarium. Therefore, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=631>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Armoured catfishes

Loricariidae

Status in the wild

Family information from FishBase.

Genera: 120

Species: 955

Range description

Costa Rica, Panama and South America. Swift-flowing streams from lowlands up to 3,000 m.

Ex situ information

Many are in the aquarium trade. Popular aquarium fish as 'Plecostomus'.

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
11.11.6347	6369	335

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	4
Agriculture & aquaculture	17
Energy production & mining	10
Transportation & service corridors	2
Biological resource use	22
Human intrusions & disturbance	-
Natural system modifications	23
Invasive & other problematic species, genes & diseases	1
Pollution	54
Geological events	-
Climate change & severe weather	1
Other options	-

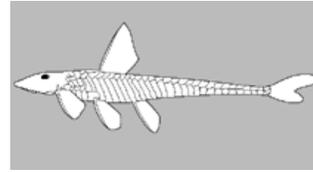


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	11
Vulnerable	6
Near Threatened	4
Least Concern	81
Data Deficient	39
Total on Red List*	143
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes several threatened species and one species is listed on a CITES appendix. Many species are found in the trade, especially the attractive species. Any species from Brazil that can be legally acquired has been found in the trade, including the threatened ones. Some of those are captive bred and some wild caught. There are more than 200 undescribed species so far many of which are already found in the trade. The TAG thinks that is likely that some of these species are highly threatened and are likely to be lost in the wild. Therefore, the benefit of having an insurance population for those species is high. But first, there is a need for an evaluation to determine which species are threatened, which are already kept and bred and if the development of breeding techniques is feasible. Some form of programme is in place for zebra pleco (*Hypancistrus zebra*). The smaller and more attractive are the most targeted and impacted by the trade. It was decided to focus on the less attractive species because no other party is protecting them. From those, several priority species can be identified that will need some form of conservation action most likely in the form of insurance populations. There are furthermore opportunities for citizen conservation and cryopreservation.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, the family is in need of species level evaluation to determine which species are threatened, which are already kept and bred and if the development of breeding techniques is feasible. Therefore, it is crucial to investigate which species need insurance, some species may only need habitat monitoring for now; and approach specialist group in Germany to collaborate on the breeding efforts for certain taxa.

Programme decision statement

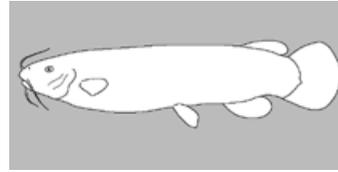
Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=157>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Electric catfishes
Malapteruridae



Status in the wild

Family information from FishBase.

Genera: 2
Species: 21

Range description
Tropical Africa and Nile.

Ex situ information
Some are in the aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.7	7	4

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	3
Agriculture & aquaculture	1
Energy production & mining	6
Transportation & service corridors	-
Biological resource use	5
Human intrusions & disturbance	1
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	6
Geological events	-
Climate change & severe weather	1
Other options	-

*Table 1
Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	6
Least Concern	9
Data Deficient	1
Total on Red List*	16
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Due the unclear taxonomy, the TAG decided to wait for the outcome of the taxonomic investigation before deciding on the management level of the family.

Roles and actions identified

Identified Actions: Before start working on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, despite not having determined any roles, the following action was identified: Investigate the taxonomy of the family.

Programme decision statement

Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed on manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=143>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Spiny eels

Mastacembelidae

Status in the wild

Family information from FishBase.

Genera: 3
Species: 86

Range description

Africa, through Syria to Malay Archipelago and China. Primarily tropical; subtropical. Habitat varied.

Ex situ information

Some are in the aquarium trade. To 0.9 m maximum length.

Regarded excellent food fish in some places.

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.11	11	6

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	4
Agriculture & aquaculture	7
Energy production & mining	9
Transportation & service corridors	1
Biological resource use	24
Human intrusions & disturbance	1
Natural system modifications	9
Invasive & other problematic species, genes & diseases	-
Pollution	32
Geological events	-
Climate change & severe weather	3
Other options	-

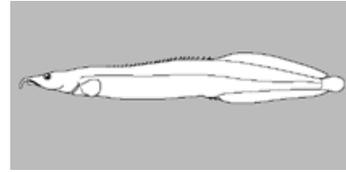


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	4
Near Threatened	1
Least Concern	47
Data Deficient	10
Total on Red List*	63
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Some species of this family are known to be imported and some are kept and bred. Based on the available information, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

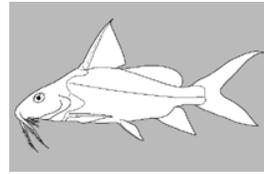
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!D=432>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Squeakers or upside-down catfishes
Mochokidae



Status in the wild

Family information from FishBase.

Genera: 11
Species: 221

Range description

Africa

***Ex situ* information**

Some are in the aquarium trade. Maximum length 72 cm.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
3.3.675	682	100

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	3
Agriculture & aquaculture	18
Energy production & mining	24
Transportation & service corridors	11
Biological resource use	42
Human intrusions & disturbance	1
Natural system modifications	27
Invasive & other problematic species, genes & diseases	1
Pollution	53
Geological events	-
Climate change & severe weather	6
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	4
Endangered	4
Vulnerable	17
Near Threatened	8
Least Concern	110
Data Deficient	51
Total on Red List*	194
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes several threatened species. EAZA institutions are keeping *Mochokidae* and breeds some of them (mostly with hormonal treatments). However, breeding is challenging on a regular basis. The species are long living (up to 25 years) and mostly between 15-20cm. The TAG decided to wait for the outcome of the actions before determining the management level of the family.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, despite not having determined any roles, the following actions were identified: Determine if the threatened species are already kept and bred and if they are available in the trade. Follow up investigating how feasible an insurance population would be. And after that, review possibilities for insurance populations.

Programme decision statement

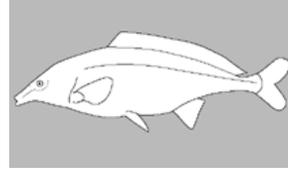
Mon-T. The TAG will work on the identified actions through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!D=144>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Elephantfishes

Mormyridae

Status in the wild

Family information from FishBase.

Genera: 22

Species: 229

Range description

Tropical Africa and Nile.

Ex situ information

Some are in the aquarium trade. Maximum length 1.5 m, usually 9-50 cm.

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.174	174	18

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	8
Agriculture & aquaculture	16
Energy production & mining	34
Transportation & service corridors	7
Biological resource use	41
Human intrusions & disturbance	1
Natural system modifications	23
Invasive & other problematic species, genes & diseases	11
Pollution	58
Geological events	-
Climate change & severe weather	8
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	5
Vulnerable	16
Near Threatened	3
Least Concern	119
Data Deficient	40
Total on Red List*	183

with IUCN mandate for *ex situ* conservation

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There are a few threatened species.

The family is somewhat challenging to keep and a research facility at Berlin University is the only known breeder of the family. There, around 20 species are kept for research on electro-magnetic navigation, feeding behaviour, etc. It is likely that some of the threatened species are kept there. The TAG decided to wait for the outcome of the actions before determining the management level of the family.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, despite not having determined any roles, the following actions were identified: Determine if the threatened species are already kept and bred. Follow up investigating how feasible an insurance population would be. Review possibilities for insurance populations.

Programme decision statement

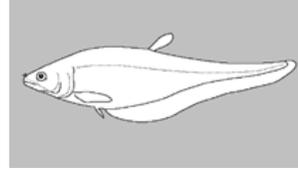
Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=40>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Featherbacks or knifefishes

Notopteridae

Status in the wild

Family information from FishBase.

Genera: 4
Species: 10

Range description

Africa (2) and Southeast Asia (2).

Ex situ information

Some are in the aquarium trade. Maximum length 80 cm. Small specimens are popular with home aquarists and large adults are exhibited in public aquaria. Most are used for food in their native ranges

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.72	72	18

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	6
Human intrusions & disturbance	1
Natural system modifications	2
Invasive & other problematic species, genes & diseases	-
Pollution	2
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	2
Least Concern	6
Data Deficient	-
Total on Red List*	8
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: None of the assessed species of the family are threatened. *Chitala blanci* has an *ex situ* mandate but is a NT food fish species in need of fishery management. It is therefore not under the remit of the RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

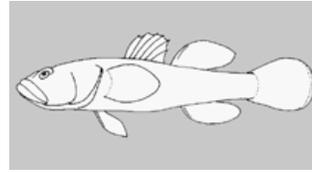
References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=37>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Freshwater sleepers

Odontobutidae



Status in the wild

Family information from FishBase.

Genera: 6
Species: 23

Range description

Freshwater streams of northern Vietnam, China, Korea, Japan, and Russia.

Ex situ information

None are in the aquarium trade.
Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.16	16	2

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	1
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	1
Least Concern	3
Data Deficient	5
Total on Red List*	10

with IUCN mandate for *ex situ* conservation

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family contains one threatened species. There is not much known about this family. *Perccottus glenii* is the only species kept according to ZIMS. It is from the Amur region and became invasive in Europe. There is not enough information available to make this family a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T DNO. Despite having listed 1 species as Endangered, there was no roles identified for *Odontobutidae*. Moreover, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends the family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=549>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Arowanas

Osteoglossidae

Status in the wild

Family information from FishBase.

Genera: 2
Species: 6

Range description

Tropical freshwater fishes. Five species occurring in the Neotropical region (2), Southeast Asia (1), Australia and New Guinea (2).

Ex situ information

Some are in the aquarium trade. Arowanas are commonly exhibited in public aquaria and is a popular aquarium fish in Asia.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.344	344	61

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

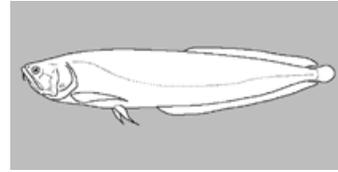


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	1
Least Concern	2
Data Deficient	-
Total on Red List*	3
with IUCN mandate for ex situ conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: One of the three assessed species is EN (*Scleropages formosus*). There is a large scale (and probably unsustainable) trade of South American species from the wild though all of them are currently assessed as LC. *S. formosus* is from Asia and bred on a large scale by commercial breeders as well as on a much smaller scale by EAZA holders. Therefore, it is not a priority of the RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

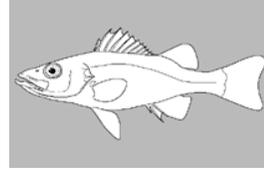
References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=38>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Temperate perches

Percichthyidae



Status in the wild

Family information from FishBase.

Genera: 10
Species: 38

Range description

Australia and South America (primarily Argentina and Chile).

Ex situ information

None are in the aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	6
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	1
Pollution	7
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	3
Vulnerable	2
Near Threatened	1
Least Concern	3
Data Deficient	8
Total on Red List*	18
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes several threatened species. The CR species is from Australia and therefore outside the remit of the RCP. The large body size of the adults makes it unfeasible to keep and breed them in a public aquarium. They are found in the aquaculture industry and it is recommended for them to protect these species from extinction. Therefore, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T DNO. Despite having listed 1 species as Critically Endangered, 3 species as Endangered and 1 as Vulnerable, there was no roles identified for *Percichthyidae*. Moreover, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends the family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=288>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Northern lampreys

Petromyzontidae

Status in the wild

Family information from FishBase.

Genera: 8
Species: 43

Range description

Mainly north hemisphere temperate zones of the world. Land-locked, lake populations or species are common in the northern hemisphere, which also commonly appear as species pairs, with one species parasitic, and the other non-parasitic.

Ex situ information

None are in the aquarium trade. Size; larvae max 10 cm, adults max 120 cm.

Available to EAZA community: No

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-,-,-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	18
Invasive & other problematic species, genes & diseases	1
Pollution	10
Geological events	-
Climate change & severe weather	3
Other options	1



Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	35
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: ZIMS has no records of species being kept in EAZA. There is not enough information available to make them a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T DNO. There were no roles identified for *Petromyzontidae*. Furthermore, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends the family to be listed as Mon-T DNO.

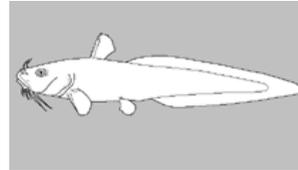
References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=1>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Eeltail catfishes

Plotosidae



Status in the wild

Family information from FishBase.

Genera: 10

Species: 42

Range description

Indo-West Pacific (Japan to Australia and Fiji).

Ex situ information

Some are in the aquarium trade.

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.15	15	5

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: One of the two assessed species is VU, but its assessment is from 1996 with no geographical range or threat data. According to ZIMS Brno keeps one unassessed freshwater species endemic to Australia (*Tandanus tandanus*) and Copenhagen keeps one unassessed freshwater species from Australia and New Guinea (*Neosilurus ater*). Freshwater species of this family are rare in European aquaria. There is not enough information available to make them a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

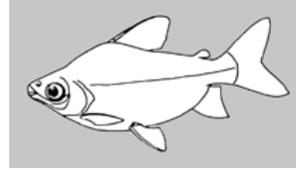
Mon-T DNO. Given the lack of roles and actions, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends this family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=149>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Flannel-mouth characiforms

Prochilodontidae

Status in the wild

Family information from FishBase.

Genera: 3
Species: 21

Range description

South America: west of the Andes in Colombia, Venezuela and north-western and southwestern Ecuador. East of the Andes; coastal rivers of eastern Brazil, and the northern portions of southern Brazil. They inhabit a diversity of habitats ranging from still ox-bow lakes, through flowing major rivers, to moderately rapid streams in piedmont regions and occur in black, clear, and white water.

Ex situ information

Unknown numbers in aquarium trade. Moderate to large sized, robust fishes (reaching up to 74 cm TL). Members of all genera are very important in both commercial and subsistence fishes. The importance of the family in fisheries is also reflected in the numerous studies involving the induced spawning and captive rearing.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: One of the two assessed species is VU. It can be kept but not bred due to complex migratory life-cycle. There is not enough husbandry expertise available to make them a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

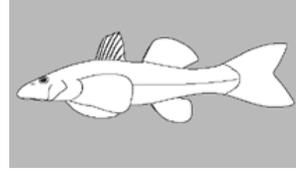
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=598>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Loach gobies
Rhyacichthyidae



Status in the wild

Family information from FishBase.

Genera: 2
Species: 3

Range description

Indo-Australian Archipelago, Philippines, China, and Solomon Islands.

Ex situ information

None are in the aquarium trade. About 32 cm maximum length.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	2
Total on Red List*	3
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: One of the two assessed species is EN (*Protogobius attiti*). It is found in a protected area in New Caledonia and therefore not under the remit of this RCP. Based on the available information, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T DNO. Despite having listed 1 species as Endangered, there was no roles identified for *Rhyacichthyidae*. Moreover, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends the family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?ID=406>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Rivulines

Rivulidae

Status in the wild

Family information from FishBase.

Genera: 38
Species: 424

Range description

South America.

Ex situ information

Unknown numbers in aquarium trade.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	6
Agriculture & aquaculture	7
Energy production & mining	5
Transportation & service corridors	2
Biological resource use	8
Human intrusions & disturbance	1
Natural system modifications	8
Invasive & other problematic species, genes & diseases	2
Pollution	7
Geological events	-
Climate change & severe weather	1
Other options	-

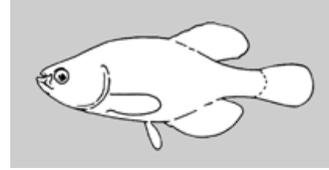


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	3
Endangered	3
Vulnerable	12
Near Threatened	3
Least Concern	13
Data Deficient	15
Total on Red List*	49
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Only 10% of the species from FishBase are assessed by IUCN, several of which are threatened. *Austrolebias cinereus* has a mandate for genome banking, *Aphyolebias obliquus* has a mandate for captive breeding. The trade has an immense impact on the wild populations but the effect of EAZA campaigning is deemed limited. The Brazilian fish biologist Wilson Costa is working on the family and reaches out to the public aquarium community to collaborate with him on the species close to extinction. The TAG considers getting in contact with him.

It seems feasible to set up insurance populations as they have been kept and bred in EAZA before. According to ZIMS only one LC species kept in EAZA (*Kryptolebias marmoratus*). Some of the threatened species are kept in the hobby community. The TAG decided on an indirect education/awareness role irrelevant of species being kept or not. The species have a short life span (spawn between 6 weeks - 6 months) though it is possible to store eggs for a few months. This impacts the sustainability and stability of populations and makes breeding challenging and resource expensive. There are no concerns about space but keeping them is time consuming. The situation is similar to the *Northobranchiidae*. However, populations in the hobby community show that it is possible to keep sustainable populations. The TAG decided to wait for the outcome of the actions before determining the management level of the family.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focus on the roles. In this case, despite not having determined any roles, the following actions were identified: Investigate for which species it is feasible to establish insurance populations. Develop suitable strategies of set up and maintain populations. Find balance of investment and benefit of efforts.

Programme decision statement

Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

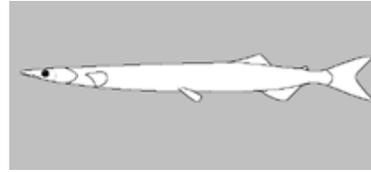
References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=601>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Icefishes or noodlefishes

Salangidae



Status in the wild

Family information from FishBase.

Genera: 7
Species: 20

Range description

Southeast Asia.

Ex situ information

None are in the aquarium trade. Maximum length about 15 cm.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	6
Human intrusions & disturbance	1
Natural system modifications	5
Invasive & other problematic species, genes & diseases	-
Pollution	4
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	6
Total on Red List*	8
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The only threatened species of this family is an EN species (*Neosalanx reganius*). It is found in Japan and therefore not under the remit of this RCP. This family is not known to be kept or bred in EAZA. Based on the available information, this is not a priority family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T DNO. Despite having listed 1 species as Endangered, there was no roles identified for *Salangidae*. Moreover, the TAG does not recommend acquiring additional individuals so that available space and efforts could go to other priority families. Therefore, the TAG recommends the family to be listed as Mon-T DNO.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!D=82>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Schilbid catfishes

Schilbeidae

Status in the wild

Family information from FishBase.

Genera: 10

Species: 49

Range description

Africa and southern Asia.

Ex situ information

Some are in the aquarium trade.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.843	843	7

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	5
Agriculture & aquaculture	5
Energy production & mining	2
Transportation & service corridors	1
Biological resource use	18
Human intrusions & disturbance	-
Natural system modifications	10
Invasive & other problematic species, genes & diseases	5
Pollution	15
Geological events	-
Climate change & severe weather	2
Other options	-

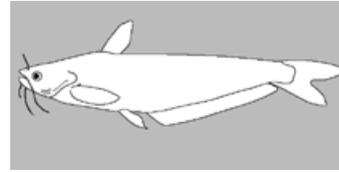


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	1
Extinct in the Wild	-
Critically Endangered	-
Endangered	3
Vulnerable	-
Near Threatened	1
Least Concern	40
Data Deficient	12
Total on Red List*	57
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family includes one EX species and three EN species, one of which with a mandate for genome banking. The large body size of most of the species makes them unfeasible to keep and breed in a public aquarium. They furthermore migrate in large spawning aggregations which are not possible to replicate under *ex situ* conditions. It is therefore decided not to prioritise the family in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=133>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Serpenticobitidae***Serpenticobitidae**

Status in the wild

Family information from FishBase.

Genera: 1

Species: 3

Range description

NA

Ex situ information

Unknown numbers in aquarium trade.

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	1
Natural system modifications	3
Invasive & other problematic species, genes & diseases	-
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	-
Data Deficient	2
Total on Red List*	3
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: There is one species assessed as VU. The family is related to the loaches. There is not enough husbandry expertise available to make them a priority in this RCP.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

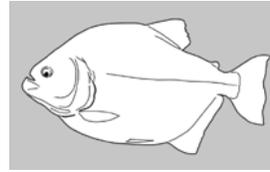
Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.Fishbase.se/Summary/FamilySummary.php?!D=698>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Serrasalminidae
Serrasalminidae



Status in the wild

Family information from FishBase.

Genera: 16
Species: 98

Range description

NA

Ex situ information

Unknown numbers in aquarium trade.

Available to EAZA community: Yes

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: None of the species are listed as threatened but the TAG thinks it is likely that some will be once they get (re)assessed. Setting up insurance populations would be feasible as they are kept and bred in EAZA. However, The TAG decided not to actively manage the family, until more information about the status in the wild becomes available.

Roles and actions identified

No roles or actions were identified for this family during the workshop.

Programme decision statement

Mon-T. Given the lack of roles and actions, the TAG recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=686>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Sisorid catfishes

Sisoridae

Status in the wild

Family information from FishBase.

Genera: 18
Species: 220

Range description

Southern Asia, from Turkey and Syria to South China and Borneo, primarily in Oriental region. Mostly small forms inhabit mountain rapids.

Ex situ information

None are in the aquarium trade. Reaches 2 m maximum length in one species.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.3	3	2

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	6
Agriculture & aquaculture	3
Energy production & mining	5
Transportation & service corridors	3
Biological resource use	34
Human intrusions & disturbance	4
Natural system modifications	31
Invasive & other problematic species, genes & diseases	2
Pollution	30
Geological events	-
Climate change & severe weather	-
Other options	1

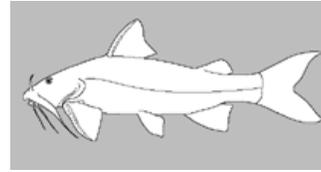


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	3
Endangered	7
Vulnerable	8
Near Threatened	5
Least Concern	42
Data Deficient	66
Total on Red List*	131
with IUCN mandate for <i>ex situ</i> conservation	4

* Some species without assessed category may have been included

Rationale

Workshop Discussion: The family contains several threatened species, few of which with an *ex situ* mandate. Their habitat are fast-flowing mountain streams, which makes keeping and breeding them challenging. The availability for acquisition is limited as they are rarely kept. Copenhagen has one species (according to ZIMS) but the overall numbers of holders and species in EAZA is unknown. The TAG decided to wait for the outcome of the actions before determining the management level of the family.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, despite not having determined any roles, the following actions were identified: Investigate the feasibility to keep and breed threatened species (including those with a mandate) and how can we can further contribute to conservation if we can breed them.

Programme decision statement

Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

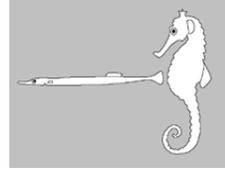
References used

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=138>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Pipefishes and seahorses

Syngnathidae



Status in the wild

Family information from FishBase.

Genera: 57
Species: 304

Range description

Atlantic, Indian, and Pacific Oceans (mostly in warm temperate to tropical). Usually limited to shallow water.

Ex situ information

Many are in the aquarium trade. About 60 cm maximum length. Some very colourful.

Available to EAZA community: Yes

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
8.10.235	258	25

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	142
Agriculture & aquaculture	14
Energy production & mining	7
Transportation & service corridors	2
Biological resource use	134
Human intrusions & disturbance	10
Natural system modifications	24
Invasive & other problematic species, genes & diseases	16
Pollution	145
Geological events	-
Climate change & severe weather	98
Other options	1

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	1
Vulnerable	1
Near Threatened	1
Least Concern	23
Data Deficient	15
Total on Red List*	278
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Rationale

Workshop Discussion: Most of the recognised freshwater species are assessed by the IUCN with very few of them listed as threatened. One VU species is endemic to streams of the Andaman Islands (India), one EN species lives in Batu Lake and Yassot Creek in Luzon, Philippines and one CR species is from the estuaries on the Eastern Cape coast of South Africa. Most of the freshwater fish in this family are pipefish. None of the threatened species are kept anywhere according to ZIMS. It is not clear which species are kept in EAZA and which (if any) need to be prioritised. The TAG decided to wait for the outcome of the actions before determining the management level of the family.

Roles and actions identified

Identified Actions: Before starting work on the roles determined for this family, the TAG and the workshop participants identified the necessary actions to take prior to focussing on the roles. In this case, despite not having determined any roles, the following action was identified: Investigate freshwater species composition of EAZA collections and threat status and conservation needs in the wild.

Programme decision statement

Mon-T. The TAG will work on the identified action through a champion. At this moment it is difficult to make any decisions about the family now without additional information. In conclusion, the TAG agreed to manage the family at a lower intensity level for now, and willing to re-assess the status in the near future. The TAG therefore recommends the family to be listed as Mon-T.

References used

FishBase information and picture: <https://www.fishbase.org/Summary/FamilySummary.php?ID=258>
(Accessed on 19.11.2019)

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

6. Appendixes

Appendix I: Dismissed families

Deep-water sculpins

Abyssocottidae

Status in the wild

Family information from FishBase.

Genera: 7

Species: 24

Range description

Primarily Lake Baikal, Siberia

Ex situ information

None are in the aquarium trade.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
--	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

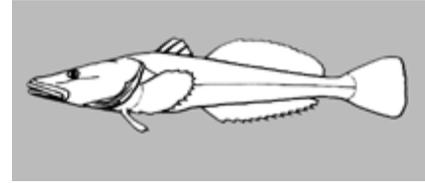


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=584>
(Accessed on 19.11.2019)

*American soles****Achiridae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
0.0.14	14	2

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	10
Data Deficient	1
Total on Red List*	21

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	9
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	1
Pollution	4
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Asian schilbeids****Ailiidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Stream catfishes****Akysidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	5
Data Deficient	40

Total on Red List* 46

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	20
Energy production & mining	3
Transportation & service corridors	-
Biological resource use	21
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	4
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Bonefishes****Albulidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	10
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	1
Biological resource use	8
Human intrusions & disturbance	5
Natural system modifications	5
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	2

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Asiatic glassfishes****Ambassidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.23	23	5

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	1
Least Concern	22
Data Deficient	8
Total on Red List*	31

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	6
Human intrusions & disturbance	1
Natural system modifications	5
Invasive & other problematic species, genes & diseases	2
Pollution	5
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Torrent catfishes****Amblycipitidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	3
Vulnerable	-
Near Threatened	-
Least Concern	5
Data Deficient	13

Total on Red List* 21

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

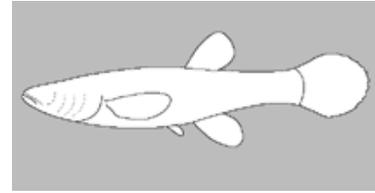
Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	1
Pollution	4
Geological events	-
Climate change & severe weather	-
Other options	1

Rationale and Programme decision statement

The family was not discussed during the workshop, and there is no reason to believe active management by the TAG is possible at this time.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Cavefishes****Amblyopsidae***

Status in the wild

Family information from FishBase.

Genera: 5

Species: 7

Range description

Southern and eastern United States.

***Ex situ* information**

None are in the aquarium trade. About 9 cm maximum length.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	2
Natural system modifications	3
Invasive & other problematic species, genes & diseases	1
Pollution	5
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The distribution of the family is only in developed countries outside the EAZA region. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=178>
(Accessed on 19.11.2019)

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	-
Vulnerable	-
Near Threatened	3
Least Concern	2
Data Deficient	-
Total on Red List*	6
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

*Bowfins****Amiidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.1	1	1

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The distribution of the family is only in developed countries outside the EAZA region. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

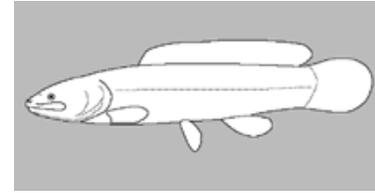


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

*Freshwater eels***Anguillidae**

Status in the wild

*Family information from FishBase.***Range description**

NA

Ex situ information

NA

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
3.2.286	291	21

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	3
Vulnerable	1
Near Threatened	5
Least Concern	3
Data Deficient	3
Total on Red List*	16
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	4
Agriculture & aquaculture	3
Energy production & mining	9
Transportation & service corridors	1
Biological resource use	16
Human intrusions & disturbance	-
Natural system modifications	14
Invasive & other problematic species, genes & diseases	5
Pollution	11
Geological events	-
Climate change & severe weather	16
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Pirate perches****Aphredoderidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The distribution of the family is only in developed countries outside the EAZA region. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Cardinalfishes****Apogonidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.417	417	51

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	1

Total on Red List* 54

with IUCN mandate for *ex* 1*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	2
Energy production & mining	-
Transportation & service corridors	1
Biological resource use	5
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	13
Pollution	3
Geological events	1
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Bonytongues****Arapaimidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	1
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Banjo catfishes
Aspredinidae

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.33	33	7

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	3
Data Deficient	2
Total on Red List*	5
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Driftwood catfishes****Auchenipteridae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.25	25	8

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	12
Data Deficient	3

Total on Red List* 15

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	7
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	2
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Chameleonfishes****Badidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	-
Least Concern	6
Data Deficient	7
Total on Red List*	14
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	8
Human intrusions & disturbance	2
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	4
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Bagrid catfishes***Bagridae**

Status in the wild

*Family information from FishBase.***Range description**

NA

Ex situ information

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.71	71	24

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	5
Endangered	3
Vulnerable	7
Near Threatened	3
Least Concern	72
Data Deficient	41
Total on Red List*	131
with IUCN mandate for <i>ex situ</i> conservation	5

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	8
Agriculture & aquaculture	18
Energy production & mining	8
Transportation & service corridors	-
Biological resource use	53
Human intrusions & disturbance	-
Natural system modifications	24
Invasive & other problematic species, genes & diseases	11
Pollution	37
Geological events	-
Climate change & severe weather	5
Other options	1

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Fire-eyed loaches****Barbuccidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Toadfishes****Batrachoididae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	6
Agriculture & aquaculture	1
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	19
Human intrusions & disturbance	1
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	9
Geological events	-
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	4
Data Deficient	3

Total on Red List*	47
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with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

*Needlefishes****Belonidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	5
Data Deficient	-
Total on Red List*	15
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	5
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Combtooth blennies***Blenniidae**

Status in the wild

Family information from FishBase.

Range description

NA

Ex situ information

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
1.3.24	28	2

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	1
Vulnerable	1
Near Threatened	-
Least Concern	6
Data Deficient	4
Total on Red List*	398

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	34
Agriculture & aquaculture	1
Energy production & mining	4
Transportation & service corridors	-
Biological resource use	14
Human intrusions & disturbance	4
Natural system modifications	7
Invasive & other problematic species, genes & diseases	1
Pollution	52
Geological events	-
Climate change & severe weather	10
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Thornfishes****Bovichtidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-

Total on Red List* 1

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Bryconidae***Bryconidae**

Status in the wild

*Family information from FishBase.***Range description**

NA

Ex situ information

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	3
Near Threatened	2
Least Concern	10
Data Deficient	3
Total on Red List*	19
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	4
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	10
Human intrusions & disturbance	-
Natural system modifications	7
Invasive & other problematic species, genes & diseases	-
Pollution	4
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Viviparous brotulas****Bythitidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	1
Vulnerable	4
Near Threatened	-
Least Concern	-
Data Deficient	-

Total on Red List* 81

with IUCN mandate for *ex* 1*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	1
Biological resource use	1
Human intrusions & disturbance	3
Natural system modifications	2
Invasive & other problematic species, genes & diseases	7
Pollution	11
Geological events	-
Climate change & severe weather	3
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Dragonets****Callionymidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
3.3.34	40	15

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	1
Total on Red List*	28

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	1
Biological resource use	5
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	2
Pollution	2
Geological events	-
Climate change & severe weather	2
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Suckers****Catostomidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.48	48	9

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	2
Extinct in the Wild	-
Critically Endangered	2
Endangered	7
Vulnerable	4
Near Threatened	4
Least Concern	49
Data Deficient	7
Total on Red List*	75

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	7
Energy production & mining	4
Transportation & service corridors	1
Biological resource use	4
Human intrusions & disturbance	1
Natural system modifications	33
Invasive & other problematic species, genes & diseases	23
Pollution	33
Geological events	-
Climate change & severe weather	7
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Sunfishes****Centrarchidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.887	887	15

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	4
Least Concern	27
Data Deficient	-
Total on Red List*	32
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	1
Biological resource use	3
Human intrusions & disturbance	1
Natural system modifications	9
Invasive & other problematic species, genes & diseases	7
Pollution	4
Geological events	-
Climate change & severe weather	2
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Snooks****Centropomidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
0.0.18	15	5

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	11
Data Deficient	-

Total on Red List* 12

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	10
Agriculture & aquaculture	6
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	10
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	3
Pollution	8
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Squarehead or angler catfish***Chacidae**

Status in the wild

*Family information from FishBase.***Range description**

NA

Ex situ information

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.1	1	1

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	1
Total on Red List*	3

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Spineless eels****Chaudhuriidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	1
Near Threatened	1
Least Concern	-
Data Deficient	3
Total on Red List*	6
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	-
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Torrentfish****Cheimarrichthyidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

The distribution of the family is only in developed countries outside the EAZA region. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Headstanders****Chilodontidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Herrings, shads, sardines, menhadens****Clupeidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.328	328	3

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	3
Endangered	5
Vulnerable	10
Near Threatened	3
Least Concern	65
Data Deficient	17
Total on Red List*	206
with IUCN mandate for <i>ex situ</i> conservation	1

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	3
Agriculture & aquaculture	5
Energy production & mining	3
Transportation & service corridors	1
Biological resource use	74
Human intrusions & disturbance	-
Natural system modifications	37
Invasive & other problematic species, genes & diseases	13
Pollution	35
Geological events	-
Climate change & severe weather	14
Other options	1

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Baikal oilfishes****Comephoridae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

Species of this family cannot be kept in public aquaria. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Bighead sculpins****Cottocomephoridae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Armourhead catfishes****Cranoglanididae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	1
Data Deficient	-

Total on Red List* 2

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*South American darters****Crenuchidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	11
Data Deficient	5
Total on Red List*	16
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	2
Energy production & mining	4
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	3
Invasive & other problematic species, genes & diseases	-
Pollution	5
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Pike-characids****Ctenoluciidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.21	21	3

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Dogtooth characins****Cynodontidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.20	20	4

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Tonguefishes****Cynoglossidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	9
Data Deficient	-
Total on Red List*	50
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	10
Human intrusions & disturbance	-
Natural system modifications	6
Invasive & other problematic species, genes & diseases	-
Pollution	6
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Sand stargazers****Dactyloscopidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	17
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	6
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	4
Geological events	-
Climate change & severe weather	7
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	48
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Velvet catfishes
Diplomystidae

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	3
Total on Red List*	3
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	1
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Thorny catfishes****Doradidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.198	198	52

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	6
Data Deficient	1
Total on Red List*	7

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Pygmy sunfishes
Elassomatidae

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.25	25	1

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	-
Vulnerable	2
Near Threatened	-
Least Concern	4
Data Deficient	-
Total on Red List*	7
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	1
Pollution	3
Geological events	-
Climate change & severe weather	2
Other options	-

Rationale and Programme decision statement

The distribution of the family is only in developed countries outside the EAZA region. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Tenpounders****Elopidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	7
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	5
Human intrusions & disturbance	4
Natural system modifications	3
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Surfperches****Embiotocidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.4.300	304	7

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	7

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	1
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Anchovies****Engraulidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	2
Vulnerable	-
Near Threatened	-
Least Concern	31
Data Deficient	16
Total on Red List*	154
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	2
Transportation & service corridors	-
Biological resource use	26
Human intrusions & disturbance	-
Natural system modifications	7
Invasive & other problematic species, genes & diseases	3
Pollution	11
Geological events	-
Climate change & severe weather	7
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*South Asian river catfishes****Erethistidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	8
Data Deficient	23
Total on Red List*	31

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	3
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Trahiras****Erythrinidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Pikes****Esocidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
2.0.25	27	14

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	4
Data Deficient	-
Total on Red List*	4
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	1
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Cods and haddocks***Gadidae**

Status in the wild

Family information from FishBase.

Range description

NA

Ex situ information

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.649	649	15

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	8
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	4
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	2
Geological events	-
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

The distribution of the family is only in developed countries outside the EAZA region. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Galaxiids***Galaxiidae**

Status in the wild

Family information from FishBase.

Genera: 7
Species: 53

Range description

Cool temperate waters of the Southern Hemisphere in Australia, Lord Howe Island, New Zealand, the Chatham Islands, Auckland and Campbell Islands, New Caledonia, southern South America, the Falkland Islands/Malvinas, and the southern tip of South Africa

Ex situ information

None are in the aquarium trade.

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
10.0.329	339	5

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	3
Agriculture & aquaculture	12
Energy production & mining	3
Transportation & service corridors	-
Biological resource use	4
Human intrusions & disturbance	-
Natural system modifications	28
Invasive & other problematic species, genes & diseases	30
Pollution	10
Geological events	-
Climate change & severe weather	6
Other options	-

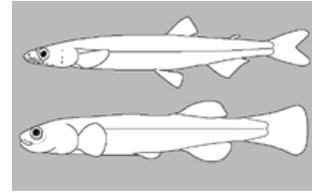
Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=79>
(Accessed on 19.11.2019)

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	14
Endangered	9
Vulnerable	10
Near Threatened	2
Least Concern	6
Data Deficient	6

Total on Red List* 47

with IUCN mandate for *ex situ* conservation 1

* Some species without assessed category may have been included

*Freshwater hatchetfishes****Gasteropelecidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Southern lampreys****Geotriidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	1
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Mojarras****Gerreidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.2	2	1

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	17
Data Deficient	-
Total on Red List*	35
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	4
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	11
Human intrusions & disturbance	-
Natural system modifications	7
Invasive & other problematic species, genes & diseases	-
Pollution	7
Geological events	-
Climate change & severe weather	2
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Clingfishes and singleslits****Gobiesocidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.5	5	3

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	-
Vulnerable	2
Near Threatened	-
Least Concern	-
Data Deficient	-

Total on Red List* 97

with IUCN mandate for *ex* 1*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	19
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	5
Human intrusions & disturbance	-
Natural system modifications	3
Invasive & other problematic species, genes & diseases	2
Pollution	16
Geological events	-
Climate change & severe weather	10
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Abas****Gymnarchidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.1	1	1

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Grunts****Haemulidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.85	85	19

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	3
Data Deficient	2
Total on Red List*	99

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	13
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	1
Biological resource use	37
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	1
Pollution	3
Geological events	-
Climate change & severe weather	7
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Kissing gourami****Helostomatidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.81	81	7

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Halftooths****Hemiodontidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.121	121	8

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

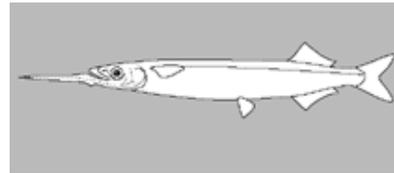
No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Halfbeaks

Hemiramphidae (See family *Zenarchopteridae* for updated taxonomy)



Status in the wild

Family information from FishBase. This is a primarily marine family which formerly included species from the family *Zenarchopteridae*.

Genera: 8
Species: 62

Range description

Atlantic, Indian and Pacific Oceans.

Ex situ information

Some are in the aquarium trade. About 45 cm maximum length. The flesh is of high quality and larger species of halfbeaks are utilized as food in many parts of the world. In the Gulf of Mexico and Caribbean Sea, they are more important as baitfish for billfishes, dolphins, kingfish, wahoo, and king mackerel than as food fish. They are caught with seines or dipnetted under lights at night.

Table 2 Number of individuals according to ZIMS***^

M.F.U.	Total	Number of species
2.2.93	97	8

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	4
Agriculture & aquaculture	2
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	10
Human intrusions & disturbance	1
Natural system modifications	4
Invasive & other problematic species, genes & diseases	7
Pollution	9
Geological events	1
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019.

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=694>
(Accessed on 19.11.2019)

African pikes
Hepsetidae

Status in the wild

Family information from FishBase.

Genera: 1
Species: 6

Range description

Tropical Africa.

***Ex situ* information**

None are in the aquarium trade. Attains 30 cm maximum length. Considered a gamefish.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.4	4	3

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=105>
(Accessed on 19.11.2019)

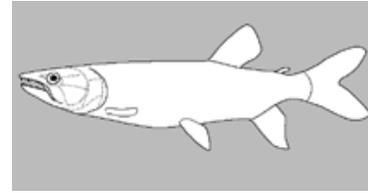


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

*Three-barbeled catfishes***Heptapteridae**

Status in the wild

*Family information from FishBase.***Range description**

NA

Ex situ information

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	4
Endangered	1
Vulnerable	3
Near Threatened	2
Least Concern	19
Data Deficient	18
Total on Red List*	47

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	4
Energy production & mining	6
Transportation & service corridors	-
Biological resource use	7
Human intrusions & disturbance	1
Natural system modifications	11
Invasive & other problematic species, genes & diseases	1
Pollution	20
Geological events	1
Climate change & severe weather	-
Other options	1

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Airsac catfishes****Heteropneustidae***

Status in the wild

Family information from FishBase.

Genera: 1

Species: 5

Range description

Pakistan to Thailand.

***Ex situ* information**

None are in the aquarium trade.

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	1
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

FishBase information and picture: <https://www.fishbase.se/Summary/FamilySummary.php?ID=140>
(Accessed on 19.11.2019)

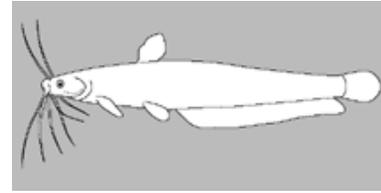


Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	1
Total on Red List*	3
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

*Mooneyes****Hiodontidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The distribution of the family is only in developed countries outside the EAZA region. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Bluntnose knifefishes****Hypopomidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Iguanodectidae****Iguanodectidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	3
Data Deficient	-
Total on Red List*	3
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Sand darters****Kraemeriidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	6
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Aholeholes****Kuhliidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.83	83	5

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	3
Data Deficient	3
Total on Red List*	8
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Nurseryfishes

Kurtidae

Status in the wild

Family information from FishBase.

Range description

NA

Ex situ information

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Asian seaperches
Lateolabracidae

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Salamanderfishes
Lepidogalaxiidae

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	1
Least Concern	-
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The distribution of the family is only in developed countries outside the EAZA region. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Aestivating lungfishes****Lepidosirenidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Gars

Lepisosteidae

Status in the wild

Family information from FishBase.

Range description

NA

Ex situ information

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
1.2.143	146	38

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	6
Data Deficient	-
Total on Red List*	6
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	1
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Hakes and burbot***Lotidae**

Status in the wild

*Family information from FishBase.***Range description**

NA

Ex situ information

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.24	24	9

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-

Total on Red List* 10

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	1
Biological resource use	5
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	2
Geological events	-
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Snappers****Lutjanidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	12
Agriculture & aquaculture	5
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	83
Human intrusions & disturbance	1
Natural system modifications	1
Invasive & other problematic species, genes & diseases	2
Pollution	7
Geological events	-
Climate change & severe weather	10
Other options	1

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	2

Total on Red List*	104
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with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

*Southern topeyed lampreys****Mordaciidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Temperate basses****Moronidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
0.0.350	350	14

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	6
Data Deficient	-

Total on Red List* 6

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Mulletts****Mugilidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
0.0.449	449	18

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	-
Least Concern	26
Data Deficient	6
Total on Red List*	47

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	5
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	17
Human intrusions & disturbance	-
Natural system modifications	5
Invasive & other problematic species, genes & diseases	1
Pollution	4
Geological events	-
Climate change & severe weather	3
Other options	-

Rationale and Programme decision statement

Species of this family are mostly marine species. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Asian leaffishes****Nandidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS**^*

M.F.U.	Total	Number of species
0.0.312	312	10

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	5
Data Deficient	1
Total on Red List*	6
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	2
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Mountain catfishes****Nematogenyidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Australian lungfish****Neoceratodontidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. The sole member of this family is from Australia and therefore outside of the scope of EAZA. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Longtail catfishes****Olyridae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	2

Total on Red List* 4

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Smelts****Osmeridae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	6
Data Deficient	-
Total on Red List*	7
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	3
Invasive & other problematic species, genes & diseases	-
Pollution	3
Geological events	-
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Shark catfishes****Pangasiidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.94	94	13

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	1
Vulnerable	1
Near Threatened	-
Least Concern	9
Data Deficient	4

Total on Red List* 17

with IUCN mandate for *ex* 1*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	15
Human intrusions & disturbance	-
Natural system modifications	13
Invasive & other problematic species, genes & diseases	2
Pollution	5
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Freshwater butterflyfish****Pantodontidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.107	107	17

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Large-tooth flounders****Paralichthyidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	5
Data Deficient	1

Total on Red List* 60

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	3
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	13
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	2
Geological events	-
Climate change & severe weather	2
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Scrapetooths****Parodontidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	1
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	1

Total on Red List* 4

with IUCN mandate for *ex* -*situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	3
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Southern basses****Perciliidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	2
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Trout-perches****Percopsidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The distribution of the family is only in developed countries outside the EAZA region. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Hingemouths****Phractolaemidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Long-whiskered catfishes****Pimelodidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
3.3.252	258	87

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	1
Vulnerable	-
Near Threatened	-
Least Concern	4
Data Deficient	1
Total on Red List*	7

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	4
Invasive & other problematic species, genes & diseases	-
Pollution	2
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Sandperches
Pinguipedidae

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-

Total on Red List* 7

with IUCN mandate for *ex*

situ conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Ayu fish****Plecoglossidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	1
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Righteye flounders****Pleuronectidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.1.635	636	32

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	5
Data Deficient	1
Total on Red List*	22

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	10
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	2
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Leaffishes****Polycentridae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Threadfins****Polynemidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	4
Data Deficient	6
Total on Red List*	21
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	11
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	1
Pollution	4
Geological events	-
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Paddlefishes****Polyodontidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.15	15	3

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	-
Vulnerable	1
Near Threatened	-
Least Concern	-
Data Deficient	-

Total on Red List* 2

with IUCN mandate for *ex situ* conservation 1

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	-
Transportation & service corridors	2
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	2
Pollution	2
Geological events	-
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Bichirs****Polypteridae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
3.4.353	360	60

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	1
Least Concern	9
Data Deficient	1
Total on Red List*	11
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	2
Agriculture & aquaculture	2
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Pristigasterids****Pristigasteridae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	12
Data Deficient	1
Total on Red List*	36

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	3
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Pristolepididae****Pristolepididae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*African lungfishes****Protopteridae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	4
Data Deficient	-
Total on Red List*	4
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	2
Energy production & mining	1
Transportation & service corridors	1
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	-
Pollution	2
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Catadromous icefishes****Pseudaphritidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Bumblebee catfishes, dwarf marbled catfishes****Pseudopimelodidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.20	20	1

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	5
Data Deficient	-
Total on Red List*	5
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	2
Energy production & mining	2
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	-
Pollution	4
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Mountain carps****Psilorhynchidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	1
Endangered	1
Vulnerable	-
Near Threatened	-
Least Concern	6
Data Deficient	10
Total on Red List*	18
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	4
Human intrusions & disturbance	-
Natural system modifications	4
Invasive & other problematic species, genes & diseases	-
Pollution	3
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*New Zealand smelts****Retropinnidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	1
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	1
Least Concern	2
Data Deficient	-
Total on Red List*	4
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	2
Human intrusions & disturbance	-
Natural system modifications	2
Invasive & other problematic species, genes & diseases	3
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The distribution of the family is only in developed countries outside the EAZA region. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Sand knifefishes****Rhamphichthyidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.3	3	2

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	1
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Salmonids****Salmonidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
6.3.627	636	32

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	13
Extinct in the Wild	2
Critically Endangered	16
Endangered	13
Vulnerable	35
Near Threatened	3
Least Concern	40
Data Deficient	19
Total on Red List*	141
with IUCN mandate for <i>ex situ</i> conservation	2

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	1
Energy production & mining	3
Transportation & service corridors	2
Biological resource use	34
Human intrusions & disturbance	3
Natural system modifications	28
Invasive & other problematic species, genes & diseases	62
Pollution	43
Geological events	-
Climate change & severe weather	14
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Scats****Scatophagidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.178	178	19

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Drums or croakers****Sciaenidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.36	36	6

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	1
Vulnerable	-
Near Threatened	2
Least Concern	6
Data Deficient	1
Total on Red List*	166

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	11
Agriculture & aquaculture	-
Energy production & mining	5
Transportation & service corridors	1
Biological resource use	49
Human intrusions & disturbance	6
Natural system modifications	4
Invasive & other problematic species, genes & diseases	2
Pollution	20
Geological events	-
Climate change & severe weather	5
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Spiny dwarf catfishes****Scoloplacidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
-.-.-	-	-

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	-
Data Deficient	-
Total on Red List*	-
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Sheatfishes****Siluridae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
2.2.651	655	33

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	2
Endangered	3
Vulnerable	1
Near Threatened	6
Least Concern	20
Data Deficient	17
Total on Red List*	49
with IUCN mandate for <i>ex situ</i> conservation	2

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	1
Agriculture & aquaculture	4
Energy production & mining	-
Transportation & service corridors	2
Biological resource use	21
Human intrusions & disturbance	1
Natural system modifications	12
Invasive & other problematic species, genes & diseases	2
Pollution	12
Geological events	-
Climate change & severe weather	1
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Glass knifefishes
Sternopygidae

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
0.0.9	9	2

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	1
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Grunters or tigerperches****Terapontidae***

Status in the wild

Family information from FishBase.

Range description

NA

***Ex situ* information**

NA

Table 2 Number of individuals according to ZIMS**^

M.F.U.	Total	Number of species
0.0.108	108	2

**The current information from ZIMS is incomplete

^ Freshwater and marine species are both included

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	3
Near Threatened	4
Least Concern	7
Data Deficient	6
Total on Red List*	21

with IUCN mandate for *ex**situ* conservation

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	1
Transportation & service corridors	-
Biological resource use	3
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

The family was not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

*Archerfishes****Toxotidae***

Status in the wild

*Family information from FishBase.***Range description**

NA

***Ex situ* information**

NA

*Table 2 Number of individuals according to ZIMS***

M.F.U.	Total	Number of species
0.0.386	386	44

**The current information from ZIMS is incomplete

*Table 1**Number of species in each IUCN Red List Category.*

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	4
Data Deficient	1
Total on Red List*	5
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Triportheidae

Triportheidae

Status in the wild

Family information from FishBase.

Range description

NA

Ex situ information

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	2
Data Deficient	-
Total on Red List*	2
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	1
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	-
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Vaillantellidae

Vaillantellidae

Status in the wild

Family information from FishBase.

Range description

NA

Ex situ information

NA

Table 2 Number of individuals according to ZIMS**

M.F.U.	Total	Number of species
-.-	-	-

**The current information from ZIMS is incomplete

Table 1

Number of species in each IUCN Red List Category.

Category	Number of species
Extinct	-
Extinct in the Wild	-
Critically Endangered	-
Endangered	-
Vulnerable	-
Near Threatened	-
Least Concern	1
Data Deficient	-
Total on Red List*	1
with IUCN mandate for <i>ex situ</i> conservation	-

* Some species without assessed category may have been included

Threats

Table 3 Number of species for which each IUCN threat type was identified.

Threat type	Number of species
Residential & commercial development	-
Agriculture & aquaculture	-
Energy production & mining	-
Transportation & service corridors	-
Biological resource use	-
Human intrusions & disturbance	-
Natural system modifications	-
Invasive & other problematic species, genes & diseases	-
Pollution	1
Geological events	-
Climate change & severe weather	-
Other options	-

Rationale and Programme decision statement

No species are assessed as threatened by the IUCN. The family was therefore not discussed during the workshop. No active management was selected during the workshop.

References used

Download of all Actinopterygii IUCN Red List Assessments on 17.11.2019

Appendixes

Appendix II: List of TAG members

TAG chair Brian Zimmerman | Bristol Zoo

TAG advisor Anton Weissenbacher | Tiergarten Schönbrunn

Current (2019) TAG members

Hannah Thomas | Chester Zoo

Marie Bournonville | Aquarium Museum Liege

Michael Köck | Haus des Meeres

Krešimir Kuri | Aquarium Karlovac

Jörg Freyhof | Leibniz-Institute of Freshwater Ecology and Inland Fisheries

Max Janse | Burgers' Zoo

Marion Wille | Aquazoo Dusseldorf

Ron Bernhard | Rotterdam Zoo

Arianna Schiona | Aquatis Aquarium-Vivarium

Adrien Martinotti | Aquatis Aquarium-Vivarium

Philippe Helsen | Antwerp Zoo

Isabel Koch | Wilhelma der zoologisch-botanische Garten

Contact information for species' programme managers can be found on the EAZA member area.

Appendix III: Description of philosophy and outline of new EAZA breeding programme structure

Since the mid-1980s cooperative breeding programmes in zoos and aquaria largely followed the “ARK paradigm”. The default goal tended to be to build (mostly) closed, long term insurance populations that are demographically stable and large enough to maintain 90% of the gene diversity of the source population for 100-200 years (Soulé et al., 1986). Animals that are part of these programmes would predominantly be kept on exhibit in many different zoos and aquaria within a region. This paradigm, with one clear ‘concept’ to get behind, was revolutionary and appropriate at that time. Cooperative management among zoos and aquaria for the common good of populations was a relatively new concept that needed time to develop and has meanwhile engrained in culture within zoo and aquarium associations. EAZA and several other regional zoo and aquarium organisations have well developed organisational frameworks for large scale *ex situ* programme management. A few relatively younger zoo and aquarium associations are now in the midst of developing and further professionalising such frameworks. The ARK paradigm was a big stimulant for the development of the scientific principles, methods and tools for the management of small *ex situ* populations and these are currently well spread throughout the zoo, conservation and scientific community (Leus et al., 2011). Through the course of the era of the ARK paradigm, zoos and aquaria were not only able to cope with the consequences of legislation governing the importation of wild origin individuals and the growing societal awareness of the need for species conservation and individual animal welfare, but became advocates for these in their own right. In more recent times, a number of internal and external developments and changes have taken place that are causing a paradigm shift (Baker et al., 2011; CBSG, 2011; Barongi et al., 2015; Traylor-Holzer et al., in press):

- The world is continuing to experience rapid losses of species and populations and many of the extant populations are undergoing significant declines and are becoming increasingly small and fragmented. A growing number of species can thus be expected to require intensive management of individuals and populations alongside other conservation actions to ensure their long-term persistence. Some of this intensive management may include *ex situ* management. Currently, conservation planning processes for *in situ* and *ex situ* populations often run largely in parallel (Redford et al. 2012, 2014); *in situ* stakeholders come together to develop conservation strategies/action plans to ensure viable *in situ* populations; and *ex situ* stakeholders do the same to ensure viable *ex situ* populations. This parallel approach may result in both communities missing out on the opportunity to make use of each other’s wide range of expertise and experience; *in situ* plans potentially paying insufficient attention to the potential need for intensive population management (*in situ* and/or *ex situ*) and *ex situ* plans not having the best design to make the strongest conservation contribution. To help facilitate a more integrated approach to conservation, the Conservation Planning Specialist Group (CPSG) of the Species Survival Commission (SSC) of the International Union for Conservation of Nature (IUCN) has coined and is promoting the “One Plan Approach” (OPA) to species conservation planning: “the joint development of management strategies and conservation actions for all populations of a species by all responsible parties to produce a single, comprehensive conservation plan for a species” (Byers et al., 2013).

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Simultaneously, IUCN SSC published its "[Guidelines on the Use of *Ex situ* Management for Species Conservation](#)", designed to help conservationists evaluate if, when and how *ex situ* management would be a valuable component of the overall conservation strategy for a particular taxon.

- Regional evaluations of the progress of programmes against the ARK paradigm's default genetic and demographic goals showed that many did not reach these (self)sustainability criteria (Lees and Wilcken, 2009; Leus et al., 2011; Long et al., 2011) and led to the realisation that an priori assignment of the same role, goals and form to each programme was perhaps no longer the most appropriate way forward (e.g. Baker et al., 2011; de Man et al., 2016). Simultaneously a growing number of programmes indicated that they felt limited by the fact that programmes had to be assigned to just one of two management categories (EEP or ESB), the characteristics of either sometimes being inappropriate to the programme they ideally wanted to build. Over time differences between these categories had become somewhat arbitrary and they were not always applied consistently across TAGs. Furthermore, the growing diversity in the types of taxa managed in *ex situ* programmes highlighted the limitations of the traditional pedigree based analytical tools for some of these, in combination with the growing importance of molecular genetic techniques, assisted reproductive technologies, biobanks etc.

To appropriately reflect the current breadth of population management activities, the needs of EAZA members and the changes and opportunities within the conservation world at large, EAZA approved a new population management structure in April 2017, following a thorough and holistic evaluation of EAZA's former population management structures.

Outline of the new EAZA *ex situ* programme structure

The new EAZA *ex situ* programme is built around three main pillars:

1. **Regional Collection Plan (RCP):** In the spirit of the One Plan Approach and through the application of the 5-STEP decision making process in the IUCN Guidelines on the Use of *Ex situ* Management for Species Conservation, TAGs will decide which species are recommended to be managed under an EAZA *Ex situ* Programme (EEP) and what the precise direct, and/or indirect, and/or non-conservation roles of each EEP will be. EEPs are defined as population management activities that are endorsed by EAZA for species that are managed by EAZA members aiming towards (maintaining) healthy populations of healthy animals within EAZA or beyond. For species that are not considered for active management, the TAG will monitor the population trend. Each RCP will be submitted to and approved by the EAZA EEP committee.
2. **Application for an EAZA *Ex situ* Programme (EEP):** For each new EEP that is recommended in an RCP (and during the transition phase for each already existing EEP that the first RCP "new style" recommends to be continued) an EEP application template will be completed. This template contains a series of questions concerning the envisaged participants, governance and general biological characteristics of the EEP that guide the TAG to make conscious decisions, rather than automatic

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assumptions, about the form and functioning of the EEP. The TAG can suggest tailor made options where the default is not in the best interest of the programme. Each application will be submitted to and approved by the EAZA EEP committee.

- 3. Long Term Management Plan (LTMP):** At regular intervals (~5 years by default, but adaptable according to the needs of the EEP) a LTMP will be produced for the EEP. Following from the precise role(s) and very general biological characteristics of the EEP as defined in the RCP and EEP application, the LTMP will more precisely define the long term genetic and demographic goals for the programme and will stipulate an action plan with all the strategies and activities (e.g. demographic and genetic management, behavioural management, veterinary protocols, welfare science, data collection and research, education aspects, *in situ* support, etc.) to be implemented in the next 5 years in order for the EEP to stay on target in reaching its roles and goals. A LTMP may, but does not necessarily, include (non)breeding and transfer recommendations for the next breeding cycle. Each LTMP is approved by the EEP species committee (when present) - (the details of the LTMP review process are still under discussion at the time of writing and when defined will be included in the updated version of the EAZA Population Management Manual).

Details on the rationale, procedures and templates for each of these three pillars can be found in the [EAZA Population Management Manual](#) and in [Appendix IV](#). The below describes in more detail the working procedures used for this edition of the Freshwater teleost RCP.

Appendix IV: Procedures followed in compiling the RCP

RCP workshop for Freshwater teleosts

Ideally, all (threatened) species are covered by an integrated conservation plan, developed according to the OPA and applying the IUCN Species Survival Commission Guidelines on the Use of *Ex situ* Management for Species Conservation. This would make it clear to professional zoos and aquaria, like the EAZA membership, which species require some form of *ex situ* management for conservation and which of those *ex situ* activities are best delivered by EAZA and its membership. Despite a steady growth in the number of taxa for which this is the case, and it being the ambition of the IUCN SSC to scale up the development of such conservation action plans, the majority of species are not yet covered by such an integrated plan. Whilst EAZA is fully on board with the ambitious targets for conservation action planning as set by the IUCN SSC, this obviously is a long-term project. In the meantime, EAZA (like other regional zoo and aquarium associations) needs to be able to continuously plan its collections and thus take a leading role in applying the OPA and the IUCN *ex situ* guidelines to develop the *ex situ* conservation priorities for EAZA to focus on as part of the EAZA Regional Collection Plan. EAZA together with the IUCN SSC Conservation Planning Specialist Group (CPSG) and other regional zoo and aquarium associations have jointly developed a process to assist zoos with collection planning in this way, called Integrated Collection Assessment and Planning (ICAP). The ICAP process can be applied at both a global or regional level. Details on the rationale and methodology of the ICAP process can be found in Traylor-Holzer *et al.* (in press).

As the situational background and philosophy leading to the ICAP process and that leading to the revision of the EAZA *ex situ* programme structure is identical, and as the ICAP process can equally be applied for assessing and developing the non-conservation roles (if any) for EAZA *Ex situ* Programmes, EAZA's new Regional Collection Planning process is based on the ICAP process, with some adjustments to link it to EAZA structures and proceedings.

EAZA RCP process

The description of the methodology below focusses predominantly on what was done and how, whereas the rationale for the methodology (the reason why) is more thoroughly described in Traylor-Holzer *et al.* (in press).

IUCN *ex situ* guidelines

The EAZA RCP new style are structured around the IUCN SSC Guidelines on the Use of *Ex situ* Management for Species Conservation, which utilises a five step decision process to determine if and which *ex situ* activities might be appropriate to be included in overall conservation strategy for the species. These five steps are (IUCN SSC 2014; McGowan *et al.* 2017):

1. Conduct a thorough status assessment (of both *in situ* and any known *ex situ* populations) and threat analysis.
2. Identify potential roles that *ex situ* management can play in the overall conservation of the species.
3. Define the characteristics and dimensions of the programme needed to fulfill the identified potential conservation role(s).

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4. Define the resources and expertise needed for the *ex situ* management programme to meet its role(s) and appraise the feasibility and risks.
5. Make an informed and transparent decision as to which *ex situ* roles and activities (if any) to retain within the overall conservation strategy of the species

The description of the methodology below describes how this step process was adjusted and applied in the context of the EAZA RCP workshop.

Family Assessment Sheets

For each of the families assessed, the data gathered, and recommendations made were recorded on a family assessment sheet. Before the workshop, information gathered on the *in situ* and *ex situ* status, the *in situ* threats and previously published *ex situ* roles/recommendations was summarised on the family assessment sheets. During the workshop, each of the selected families was reviewed and discussed. This formed the basis for the generation of the list of potential conservation roles for *ex situ* management and the evaluation of the characteristics of each of the roles. This role generation and evaluation process, actions described as well as additional comments and the final recommendations made were added to each sheet. Details on the methodology for each of these process components can be found below.

Pre-workshop Preparation

There are over 200 freshwater teleost families (more than 21,600 species) under the EAZA Freshwater teleost TAG's remit. For obvious reasons, it would be an impossible task to attempt to put all of them through the current procedure for assessing species and inclusion onto the Regional Collection Plan for freshwater teleosts. Therefore, the TAG had to consider a much more pragmatic approach including a pre-selection of families. Consequently, it was decided to focus on families that:

- Have at least one freshwater species.
- Can be maintained in aquariums.
- At least one species within the family is threaten (VU, EN, CR) or Extinct in the wild (EW).
- Have species that are already managed *ex situ*.
- There is an *ex situ* mandate and/or IUCN's recommendation to keep and/or breed species within that family.
- It is possible to legally acquire individuals of the species.
- Can be/have been bred in EAZA institutions.

Of course, not all criteria were determinative, as in for example, a family could still be chosen for management without a mandate. In addition, the exhibit value (attractive appearance, possible for mixed exhibits) of the species was also mentioned during the review but was not considered a selection criterion.

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IUCN Ex situ guidelines STEP 1: Conduct a thorough status assessment (of both in situ and any known ex situ populations) and threat analysis.

In situ status and threats

For the RCP workshop, the IUCN Red List category of threat, the population trend and a brief summary of the status, range and threat information on the full Red List account were recorded for each taxon. For the EAZA RCP this was, where relevant, complemented by the Global CITES (Convention on International Trade in Endangered Species) listing.

Ex situ activities can help to address the threats or challenges that a species is experiencing in four different ways (IUCN SSC 2014; McGowan *et al.* 2017; Traylor-Holzer *et al.*, 2018):

- *By addressing the causes of primary threats* (for example through specifically designed research, training or conservation education activities that directly impact the causes of these threats).
- *By offsetting the impact of primary and/or stochastic threats* on the population (for example through activities that help to improve survival (of particular life stages), reproductive success and/or gene diversity retention or gene flow).
- *By buying time* in cases where the wild population is in severe decline and the chance of sufficiently rapid reduction of primary threats is slim or uncertain or has been inadequately successful to date (for example through rescue or insurance populations)
- *By restoring wild populations* once primary threats have been sufficiently addressed (for example by reintroductions).

In order to precisely identify *ex situ* roles that best address the threats and challenges faced by the taxon, it is therefore important to not merely consider the IUCN Red List category of threat, but to also consult the more detailed descriptions of the threat processes in the full Red List account and, where relevant, in additional sources or by consulting *in situ* stakeholders. A summary of the main threats faced by each taxon, extracted from the above sources, was recorded on the taxon sheet.

Ex situ status

According to the OPA, the status of not only the *in situ* but also any *ex situ* populations should be taken into consideration when identifying and evaluating potential conservation strategies for a taxon, in order to be able to take account of the full range possibilities.

Regardless of whether a Collection Plan is conducted at a global or regional/national level, the status of *ex situ* populations in other regions should be considered as this is relevant to decisions concerning division of responsibilities between regions and potential for collaboration.

Acronyms of regional zoo associations and other organisations mentioned on the species assessment sheets:

EAZA: European Association of Zoos and Aquaria
AZA: Association of Zoos and Aquariums (U.S.A. and Canada)
EUAC: European Association of Aquarium Curators

IUCN Ex situ guidelines STEP 2: Identify potential roles that ex situ management can play in the overall conservation of the species.

Prior *ex situ* recommendations

Under the principle of the OPA, *in situ* and *ex situ* specialists should together evaluate the most appropriate actions to save a species and, within that, identify any direct or indirect roles for *ex situ* conservation. However, in the context of an RCP workshop where a large number of taxa is being evaluated at the same time, it is not possible or effective to invite all *in situ* specialists for all taxa

With the help of EAZA Freshwater teleost TAG, published conservation strategies and action plans were gathered and consulted to extract any existing *ex situ* recommendations or mandates. This included documents such as regional, national or local governmental plans and plans by international or local NGOs or conservation alliances.

Information on existing *ex situ* recommendations or mandates was summarised on the species assessment sheets.

RCP workshop

A list of participants of the EAZA RCP workshop can be found in [Appendix V](#).

At the start of the EAZA RCP workshop the participants were presented with:

a) the family assessment sheets, which included for each taxon:

- The summary of the *in situ* status and threats.
- The *ex situ* status.
- (Where applicable) Pre-filled in potential *ex situ* conservation roles identified through the pre-workshop survey and any previously published *ex situ* roles or recommendations.

b) a workshop manual ([Appendix VI](#)) containing:

- Definition of the One Plan Approach.
- Five decision steps in the IUCN SSC Guidelines on the Use of *Ex situ* Management for Species Conservation.
- Descriptions of the main types of direct conservation roles (based on the role descriptions in the [IUCN *ex situ* guidelines \(IUCN SSC 2014\)](#) and the [Amphibian Ark Conservation Needs Assessment Process](#) and indirect *ex situ* conservation roles.
- Guidance to determine characteristics and resources of the *ex situ* population needed to fulfil proposed roles – and to examine benefit, feasibility and risk.
- Guidance on what to take into account when trying to reach consensus as to which *ex situ* roles to recommend for the taxon.
- A list and description of the new EAZA RCP categories that can be assigned to taxa.

Appendixes

- A list of workshop participants.

The meeting opened with welcoming remarks, participant introductions and an introductory presentation on current practice in the TAG, including what are the challenges perceived, and how are the species prioritised. This was followed by the discussion session focused on the challenges and how to overcome those barriers. Then the group management strategies and the EAZA structure and how to integrate the relevant EEP procedures were presented. Finally, all selected families were discussed. For each selected family the following process was followed:

1. Presentation and review of the *in situ* status and threats, prioritisation criteria, potential *ex situ* roles, prior *ex situ* roles suggested in existing strategies/action plans and of the *ex situ* status. Suggested comments/changes/additions from the EAZA RCP participants on this information.
2. Systematic discussion and evaluation of the potential *ex situ* conservation and non-conservation roles and identified actions. All suggestions from the RCP workshop participants were recorded.

IUCN Ex situ guidelines STEP 3: Define the characteristics and dimensions of the programme needed to fulfil the identified potential conservation role(s).

4. Assessment of characteristics and dimensions of the *ex situ* population needed to fulfil the identified role(s). All suggested comments/changes/additions from the EAZA RCP participants were recorded on the family assessment sheet. The RCP participants then also defined the characteristics for any non-conservation roles suggested during the RCP workshop.

IUCN Ex situ guidelines STEP 4: Define the resources and expertise needed for the ex situ management programme to meet its role(s) and appraise the feasibility and risks.

5. Presentation and review of the comments on existing *ex situ* population, husbandry challenges, technical or logistical challenges, availability of skilled staff, availability of sufficient financial and other resources (feasibility) and considering, for example, vulnerability to catastrophes, consequences for wild population, occupying *ex situ* space for other species that need it more, human health and safety risks, political risks, risks for social or public conflicts (risk) for each family based on proposed roles and actions. All suggested comments/ additions from the RCP workshop participants were recorded on the family assessment sheet.

IUCN Ex situ guidelines STEP 5: Make an informed and transparent decision as to which ex situ roles and activities (if any) to retain within the overall conservation strategy of the species

6. Presentation and review of the consensus reached so far during the RCP workshop on which of the potential *ex situ* roles identified (if any) were recommended, based on an analysis of the benefits vs feasibility and risks.

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Based on the above, the RCP workshop participants then decided which direct and/or indirect and/or non-conservation roles they wanted to select for the EAZA region, evaluated the feasibility of delivering on this role in the EAZA region and then reached consensus on which roles to recommend for the EAZA region.

For those taxa for which one or more roles were recommended for the EAZA region, one of the following EAZA RCP Categories was assigned:

CATEGORY	DESCRIPTION
EEP	European <i>Ex situ</i> Programme. The taxon needs proactive management by EAZA to fulfil its specified <i>ex situ</i> roles. This includes programmes that require proactive management to phase out the taxon or replace it with one or more other taxa. The proactive management must not necessarily include managing a population in the EAZA region (e.g. can involve activities by EAZA staff to help manage an <i>ex situ</i> population/programme in a range state). EAZA can be the lead partner in the <i>ex situ</i> programme, or can be a participating partner in a collaboration lead by others (e.g. range state governments, NGOs, other zoo association, etc.) <i>For new EEPs or old EEPs, ESBs or Mon-Ps transferring to the new EEP format for the first time, an EEP application form should be completed specifying the characteristics of the EEP.</i>
MON-T REPLW	The TAG will monitor the replacement of this taxon with one or more other taxa (specify which).
MON-T Phase out	The TAG will monitor the recommended disappearance of this taxon from EAZA collections.
MON-T DNO	The taxon is currently not present in EAZA collections and is not recommended to be obtained in EAZA collections. Its presence/absence will be monitored by the TAG.
MON-T	The taxon is present in EAZA collections and while there is no specific role for the taxon (with associated management), there is also no active recommendation to replace or phase out the taxon. The TAG will monitor the numbers of this taxon in EAZA collections.

At the end of the EAZA RCP workshop, the complete list of recommended EEPs and programmes defined under a MON-category was reviewed with regards to the feasibility of delivering such number and type of programmes within the EAZA region (in terms of overall space availability, other characteristics of individual programmes, human and other resources etc.). It was deemed feasible to retain all new / renewed proposed EEPs. The final list of EAZA RCP categories recommended for each taxon, as well any direct and/or indirect and/or non-conservation roles recommended for each taxon can be found in section 2: [Summary table](#).

Post RCP workshop

In the EAZA RCP “new style” a description in sentences of all the roles selected for a particular taxon is required. Due to a lack of time during the RCP workshop this was drafted

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by the TAG liaison and the TAG chair after the workshop and reviewed by and commented on by the other workshop participants and TAG members by email. The final role description was added to the family assessment sheet.

Similar, due to lack of time during the workshop, the rationale behind the decision to recommend a particular EAZA programme category for each taxon was drafted after the workshop by the TAG chair and the TAG liaison and reviewed by and commented on by the other workshop participants and TAG members by email. The final programme decision statement was added to the family assessment sheet.

For each new EEP recommended in the RCP (including already existing EEP that the first RCP “new style” recommends being continued) an EEP application template needs be completed. The template for this form can be found in [Appendix VII](#). This template contains a series of questions concerning the envisaged participants, governance and general biological characteristics of the EEP that guide the TAG to make conscious decisions, rather than automatic assumptions, about the form and functioning of the EEP. The TAG can suggest tailor made options where the default is not in the best interest of the programme. Due time restraint during the RCP workshop, the EEP applications are being created by the TAG chair and the TAG liaison and will be reviewed by the suggested EEP coordinator by email. The completed EEP application forms are kept separately to the RCP report. Each application will be submitted to and requires approval from the EAZA EEP committee.

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Appendix V: Final list of RCP workshop participants

Name	Organisation	Function
Anton Weissenbacher	Tiergarten Schönbrunn	Freshwater teleost TAG advisor
Brian Zimmerman	Bristol Zoo	Freshwater teleost TAG chair
David Aparici	European Association of Zoos and Aquaria (EAZA)	Coordinator Animal Programmes and Conservation/ Facilitator
Elmar Fienieg	European Association of Zoos and Aquaria (EAZA)	Population Biologist / Facilitator
Nora Hausen	European Association of Zoos and Aquaria (EAZA)	Assistant Population Biologist / Facilitator
Max Janse	Burgers' Zoo	Internal advisor
Hannah Thomas	Chester Zoo	Internal advisor
Marion Wille	Aquazoo Dusseldorf	Internal advisor
Michael Koeck	Haus des Meeres	Internal advisor
Ron Bernhard	Rotterdam Zoo	Internal advisor
Arianna Schiona	Aquatis Aquarium-Vivarium	Internal advisor
Adrien Martinotti	Aquatis Aquarium-Vivarium	Internal advisor
Philippe Helsen	Antwerp Zoo	Internal advisor
Isabel Koch	Wilhelma der zoologisch-botanische Garten	Internal advisor
Kathryn Rodriguez-Clark	Smithsonian's National Zoo and Conservation Biology Institute	External advisor

WORKSHOP MANUAL



EAZA Regional Collection Planning Workshop for Freshwater teleost EAZA Executive Office, 12- 14 November 2019



AGENDA
Tuesday 12th November

(09:10 – 18:00)

09:10 – 09:30 Welcome coffee & tea

09:30 – 09:45 Introduction to the workshop and participant introductions (*All*)

Workshop part I: Defining species, families, barriers and challenges

09:45 – 10:15 Overview of new EAZA RCP workshop process, TAG vision/mission and potential roles (*David*)

10:15 – 10:30 Presentation/explanation by current practice in the TAG; what challenges are perceived, how are species prioritised, managed etc. (*Toni and Brian*)

10:30 – 11:00 Discussion with TAG on perceived barriers (*All*)

11:00 – 11:30 **Coffee break**

11:30 – 13:00 Discussion to overcome barriers and species prioritization with the TAG (*All*)

13:00 – 14:00 **Lunch**

14:00 – 15:00 Group management (*Elmar*)

15:00 – 15:15 EAZA structure. One-size-does-not-fit-all, but how can we still integrate the relevant EEP procedures into this? (*David*)

15:15 – 15:30 **Coffee break**

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Workshop part II: EAZA *ex situ* Programme assessments | Family sheets

15:30 – 18:00 Workshop part II: EAZA *ex situ* Programme assessments | Family sheets

EAZA *ex situ* Programme decisions – process for each species:

1. Presentation on gathered information for Species Assessment Sheets
2. Facilitated plenary discussion:
 - a. Potential direct or indirect conservation roles and assessment of management characteristics, benefit, feasibility and risk
 - b. Potential non-conservation roles and assessment of management characteristics, benefit, feasibility and risk
3. Decision on which roles (if any) to recommend for EAZA *ex situ* management
4. EAZA *ex situ* Programme decision (selecting RCP category)

18:00 End of day 1

Wednesday 13th November

(09:10 – 18:00)

09:10 – 09:30 Welcome coffee & tea

09:30 – 10:30 Workshop part II: EAZA *ex situ* Programme assessments | Family sheets

10:30 – 10:45 Coffee/tea break

10:45 – 13:00 Workshop part II: EAZA *ex situ* Programme assessments | Family sheets

13:00 – 14:00 Lunch

14:00 – 16:00 Workshop part II: EAZA *ex situ* Programme assessments | Family sheets

16:00 – 16:30 Coffee/tea break

16:30 – 18:00 Workshop part II: EAZA *ex situ* Programme assessments | Family sheets

Review of summary table

18:00 End of day 2

Thursday 14th November

(08:30 – 18:00)

09:10 – 09:30 Welcome coffee & tea

09:30 – 10:30 Workshop part II: EAZA *ex situ* Programme assessments | Family sheets

10:30 – 10:45 Coffee/tea break

10:45 – 13:00 Workshop part II: EAZA *ex situ* Programme assessments | Family sheets

13:00 – 14:00 Lunch

14:00 – 16:00 Workshop part II: EAZA *ex situ* Programme assessments | Family sheets

16:00 – 16:30 Coffee/tea break

16:30 – 18:00 Workshop part III:

Review of summary table

Wrap-up and explanation of follow-up steps:

- Completing application forms for recommended EEPs (examples)
- Report writing: distribution of tasks and timeline
- Submission of RCP to EEP Committee for approval
- Submission of EEP applications form
- Sharing document and results with wider community

18:00 End of workshop

ONE PLAN APPROACH

A 'One Plan' approach (OPA) to species conservation promotes the joint development of management strategies and conservation actions for all populations of a species by all responsible parties to produce one comprehensive conservation plan for the species, with the ultimate goal of supporting the species' conservation in the wild (Byers *et al.* 2013)¹.

IUCN SSC GUIDELINES ON THE USE OF *EX SITU* MANAGEMENT FOR SPECIES CONSERVATION²

Five-step decision making process to decide when *ex situ* management is an appropriate conservation tool within the overall conservation strategy for a taxon:

- STEP 1. COMPILER A STATUS REVIEW OF THE SPECIES, INCLUDING A THREAT ANALYSIS.
- STEP 2. Define the role(s) that *ex situ* management will play in the overall conservation of the species.
- STEP 3. Determine the characteristics and dimensions of the *ex situ* population needed to fulfil the identified conservation role(s).
- STEP 4. Define the resources and expertise needed for the *ex situ* management programme to meet its role(s) and appraise the feasibility and risks.
- STEP 5. Make a decision that is informed (i.e., uses the information gathered above) and transparent (i.e., demonstrates how and why the decision was taken).

¹ Byers, O., C. Lees, J. Wilcken, and C. Schwitzer. 2013. The "One Plan Approach": The philosophy and implementation of CBSG's approach to integrated species conservation planning. *WAZA Magazine* 14: 2-5.

² IUCN SSC. 2014. [Guidelines on the Use of *ex situ* Management for Species Conservation](#). Version 2.0. Gland, Switzerland: IUCN Species Survival Commission.

Appendixes

INVESTIGATING POTENTIAL *EX SITU* CONSERVATION ROLES

Please note that throughout the below the term “zoo” refers to the “zoo and aquarium community”.

FOR THREATENED SPECIES

(for this project, defined as EW, CR, EN, VU on the global IUCN Red List)

DIRECT CONSERVATION (i.e., the individuals in the *ex situ* population play a conservation role – see page 6)

1. Is there an existing conservation strategy/action plan for this species that calls for some form of *ex situ* management in support of conservation?
2. Do you feel (and/or does an existing strategy/plan state) that *ex situ* management with one or more direct conservation roles would be required for this species – and if so, which roles? (*One ex situ programme may serve several conservation roles – either simultaneously or consecutively*)
 - a. If yes, do you feel that the zoo/aquarium community should help with:
 - i. Implementing an *ex situ* programme located elsewhere than on zoo/aquarium grounds (e.g., in a range country facility or another non-zoo environment)
 - b. And/or:
 - i. Implementing an *ex situ* programme in professionally managed zoos and aquariums (this can range from one, to a few zoos/aquariums, to a large cooperative programme regionally or globally)

INDIRECT CONSERVATION (i.e., ways in which the expertise, knowledge, materials, staff, fund raising etc. present in the zoo/aquarium community can contribute to *in situ* conservation activities – see page 7). Please note that a threatened species may be eligible for indirect conservation support from the zoo community even if it is currently not held by zoos.

3. Do you see a specific need for expertise, knowledge, materials, staff or other in-kind support from the zoo/aquarium community to help implement a particular *in situ* conservation action, or address a particular *in situ* problem?
4. Is there a high priority *in situ* project for which small scale funding from the zoo/aquarium community could make a lot of difference for the conservation of the species (that might perhaps have difficulty attracting funds from other sources)?
5. Are there particular messages that you feel would be good for zoos/aquariums to include in general conservation educational activities for the visitors?

NON-CONSERVATION ROLES

6. Do you see any important non-conservation roles for this species (see page 7)

PLEASE RATE the conservation benefits of any conservation roles chosen as well as the benefit to the zoo community of any non-conservation roles chosen (see page 7)?

FOR NON-THREATENED SPECIES

7. Do you have reason to believe that this taxon, which is currently not listed as either EW, CR, EN or VU, might recently have run into significant trouble, such that its current threat status might be more severe than is evident from its current IUCN Red List category? If yes, please specify and answer questions 1-5 above.
8. Do you think there is a need for this non-threatened species to function as a model, through *ex situ* activities, for a threatened species, for example to gain husbandry experience, for conservation-targeted research, conservation-targeted education, or “ecological replacement”?
9. Do you see any important non-conservation roles for this species (see page 7)?

PLEASE RATE the conservation benefits of any conservation roles chosen as well as the benefit to the zoo/aquarium community of any non-conservation roles chosen (see page 7).

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COMMON DIRECT CONSERVATION ROLES FOR *EX SITU* MANAGEMENT

Descriptions of these roles are based on a combination of the role descriptions in the [IUCN SSC Guidelines on the Use of *ex situ* Management for Species Conservation](#) and those in Appendix I of the [Amphibian Ark Conservation Needs Assessment Process](#).

Ark

Maintenance of a long-term *ex situ* population after extinction of all known wild populations and as a preparation for reintroduction or assisted colonization if and when feasible.

Rescue (temporary or long term)

A species that is in imminent danger of extinction (locally or globally) and requires *ex situ* management, as part of an integrated programme, to ensure its survival. The species may be in imminent danger because the threats cannot/will not be reversed in time to prevent likely species extinction, or the threats have no current remedy. The rescue may need to be long-term or temporary (e.g., to protect from catastrophes or predicted imminent threats that are limited in time, like extreme weather, disease, oil spill).

Demographic manipulation

Improving a demographic rate (survival or reproduction) or status (e.g., skewed sex ratio), often of a particular age, sex, or life stage. For example, head-start programmes that remove individuals from the wild to reduce high mortality during a specific life stage and then subsequently return them to the wild.

Population restoration

Source for population restoration, either to re-establish the species to part of its former range from which it has been extirpated, or to reinforce/supplement an existing population (e.g., for demographic, behavioural or genetic purposes).

Ecological replacement

Re-establish a lost ecological function and/or modify habitats. This may involve species that are not themselves threatened but that contribute to the conservation of other taxa through their ecological role.

Assisted colonization

Introduce the species outside of its indigenous range to avoid extinction.

Insurance population

Maintaining a long-term viable *ex situ* population of the species to prevent predicted local, regional or global species extinction and preserve options for future conservation strategies. These are typically species that are threatened and for which it is unsure whether *in situ* threat mitigation will have the sufficient effect in a sufficient timeframe to prevent the extinction of the species or to prevent a dramatic decline in the numbers, populations and/or genetic diversity of the species. An *ex situ* population may be desired as an insurance population from which individuals can be extracted for genetic and/or demographic supplementation or other conservation translocations as required, but these are not yet actively planned in the foreseeable future.

***Ex situ* research and/or training**

Ex situ populations that are used for research and/or training that will directly benefit conservation of the species, or a similar species, in the wild (e.g., monitoring methods, life history information, nutritional requirements, disease transmission/ treatment). The research/training addresses specific questions essential for success of the overall conservation strategy for the species. This can include non-threatened species serving as a model for more threatened species or establishing *ex situ* populations of a threatened species to gain important species-specific husbandry and breeding expertise that is likely to be needed in the future to conserve the species.

Conservation Education

The *ex situ* management forms the basis for an education and awareness programme that addresses specific threats or constraints to the conservation of the species or its habitat. The education addresses specific human behavioural changes that are essential for the success, and an integral part of, the overall conservation strategy for the species. This primarily involves *ex situ* locations visited by the intended human audience.

INDIRECT CONSERVATION ROLES FOR *EX SITU* MANAGEMENT

These are situations in which the zoo and aquarium community can contribute to conservation by:

- making available its expertise, knowledge, materials, staff, fund raising, etc. to help implement *in situ* conservation actions, and/or
- carrying out general awareness and conservation education activities aimed at the zoo and aquarium visiting public

Indirect conservation contributions can be made for a species regardless of whether or not it is held in captivity.

Examples of indirect conservation roles include:

- Providing knowledge, experience or training to build capacity for veterinary care or handling of individuals in the field (e.g., radio collar application, transport etc.) or in the context of law enforcement (e.g., rescue centres, human wildlife conflicts etc.).
- Making available existing zoo/aquarium education materials or education/behaviour change expertise to teams developing awareness programmes for local communities *in situ*.
- Carrying out education and awareness about the status of and threats to the species. Increasing interest in the species and its habitat/ecosystem.
- Networking and lobbying to influence opinions, legislation processes, etc.
- Small scale fundraising to contribute to high priority *in situ* projects or IUCN SSC Specialist Group activities.

NON-CONSERVATION ROLES FOR *EX SITU* MANAGEMENT

Questions that can be asked to investigate non-conservation roles for *ex situ* management in zoos:

- Is this species required/suited to let holders gain experience in fish husbandry before taking on more difficult species? Specify which type of experience.
- Is the species important for research that is not conservation related (basic and applied research)? Specify the research fields.
- Is the species particularly valuable for non-conservation education (e.g., specific aspects of fish biology)? Specify the education topics.
- Does the species have an above average evolutionary distinctiveness score (see pages 7 and 8)?
- Is the species colourful, distinctive, diurnal, active or particularly attractive as a zoo exhibit?
- Does the taxon have a special human cultural value (e.g., as a national or regional symbol, in a historic context, featuring in traditional stories etc.) or economic value (e.g., traditional medicine, tourism, hunting) within its natural range or in a wider global context, and does this give the species a particular value for education or exhibit?

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DETERMINING CHARACTERISTICS AND RESOURCES OF THE *EX SITU* POPULATION NEEDED TO FULFIL THE IDENTIFIED ROLE(S)

1. General characteristics

- Does the programme likely need to be long, medium or short-term?
- Is a release phase already planned for the foreseeable future?
- Is proximity to the natural habitat crucial or beneficial?
- Do the *ex situ* activities involve whole living organisms and/or live bio-samples?
- What level of human proximity or interaction is desirable?

2. Founders and population size

- Is the founder base of the current *ex situ* population likely already sufficient or are more founders required?
- Can additional founders or unrelated individuals be (legally and logistically) obtained? From wild? Other zoo regions? Other *ex situ* collections?
- Can the population be kept at, or grown to, the required population size?

3. Genetic and demographic management

- Is the taxonomy clear *in situ* and *ex situ*? What is the taxonomic scope of the *ex situ* programme?
- Will reproduction be required in the *ex situ* programme?
- Is retention of a high proportion of gene diversity of high, medium or low importance?
- Is control over the population size/growth and age/sex structure of high, medium or low importance?
- Is the species best managed at an individual or group level?
- Will breeding and transfer recommendations be necessary? If yes, how important is it that these are mandatory?
- How likely are ownership and access issues expected to impede success of the programme?

4. Location and scale

- What are the geographic location and scale? Is there range country involvement?
- Do (some) non-zoo association members or non-zoo institutions play a role? If yes, what level of commitment is required from them?
- If work is required across regions, is there a need for a formal framework for this or is more informal collaboration sufficient?

5. Catastrophes

- Are there any biosecurity needs?
- Are there specific requirements to reduce impact of other potential catastrophes?

6. Are **research** or **training** setup/equipment needed?

7. Are particular **welfare** issues to be addressed?

Feasibility: High / Medium / Low
(existing ex situ population, husbandry challenges, technical or logistical challenges, availability of skilled staff, availability of sufficient financial and other resources, ...)

Risks: High / Medium / Low
(sensitivity to catastrophes, consequences for wild population, occupying ex situ space for other species that need it more, human health and safety risks, political risks, risks for social or public conflicts, ...)

SELECTING FROM POTENTIAL *EX SITU* ROLES IDENTIFIED

Reaching consensus whether or not to go ahead with *ex situ* activities with these roles:

- **For conservation roles:** Considering
 - the relative importance/weight of the potential conservation benefit (also compared to alternative conservation actions or inaction) vs. the likelihood of success, costs and risks, is/are there (a) conservation role(s) for *ex situ* management of this taxon within EAZA (if any)?

- **For non-conservation roles:** Considering
 - the relative importance/weight of the benefit of the species to the zoo community (unrelated to conservation) vs. the likelihood of success, costs and risks – ESPECIALLY the cost of occupying enclosure space for songbirds, or for other taxa with similar requirements, is/are there (a) non-conservation role(s) for *ex situ* management of this taxon within EAZA (if any)?

➔ **Consensus on final role(s) for EEP (if any)**

SELECTING THE RCP CATEGORY FOR A TAXON

For each taxon please select one of the following categories:

CATEGORY	DESCRIPTION
EEP	European <i>ex situ</i> Programme. The taxon needs proactive management to fulfil its specified roles. This includes programmes that require proactive management to phase out the taxon or replace it with one or more other taxa. For new EEPs or old EEPs, ESBs or Mon-Ps transferring to the new EEP format for the first time, an EEP application form should be completed specifying the characteristics of the EEP.
MON-T REPLw	The TAG will monitor the replacement of this taxon with one or more other taxa (specify which).
MON-T Phase out	The TAG will monitor the recommended disappearance of this taxon from EAZA collections.
MON-T DNO	The taxon is currently not present in EAZA collections and is not recommended to be obtained in EAZA collections. Its presence/absence will be monitored by the TAG.
MON-T	The taxon is present in EAZA collections and while there is no specific role for the taxon (with associated management), there is also no active recommendation to replace or phase out the taxon. The TAG will monitor the numbers of this taxon in EAZA collections.

Preliminary list of workshop participants

Name	Organisation	Function
Anton Weissenbacher	Tiergarten Schönbrunn	Freshwater teleost TAG advisor
Brian Zimmerman	Bristol Zoo	Freshwater teleost TAG chair
David Aparici	European Association of Zoos and Aquaria (EAZA)	Coordinator Animal Programmes and Conservation/ Facilitator
Elmar Fienieg	European Association of Zoos and Aquaria (EAZA)	Population Biologist / Facilitator
Sonia Rosenbom	European Association of Zoos and Aquaria (EAZA)	Population Biologist / Facilitator
Nora Hausen	European Association of Zoos and Aquaria (EAZA)	Assistant Population Biologist / Facilitator
Max Janse	Burgers' Zoo	TAG member
Hannah Thomas	Chester Zoo	TAG member
Marion Wille	Aquazoo Dusseldorf	TAG member
Michael Koeck	Haus des Meeres	TAG member
Ron Bernhard	Rotterdam Zoo	TAG member
Arianna Schiona	Aquatis Aquarium-Vivarium	TAG member
Adrien Martinotti	Aquatis Aquarium-Vivarium	TAG member
Philippe Helsen	Antwerp Zoo	TAG member
Isabel Koch	Wilhelma der zoologisch-botanische Garten	TAG member
Kathryn Rodriguez-Clark	Smithsonian's National Zoo and Conservation Biology Institute	External advisor

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Appendix VII: EEP application template

EEP Proposal for Common Species Name:
Scientific Species Name:

Prepared by

Name(s): TAG

1. Contact information

Contact details of proposed EEP Coordinator

Name:

Institution:

Email:

2. Taxonomy information

Taxonomy of the species

3. Identified roles

Identified role(s) description

Conservation roles for *ex situ* management

Non-conservation roles for *ex situ* management

4. Programme participants and governance

EAZA institutional scope *(As a default, participation in EEPs is obligatory for EAZA members. If you wish for an exemption, identify which institution(s) holding this species is/are not part of the EEP and explain the underlying reasons.)*

Yes, all EAZA.

Non-EAZA holding institutional scope *Select one or more of the options below.*

- EAZA population/community is the dominating driver of the EEP and any non-EAZA members will occasionally join and are not integral to the structure of the EEP.**
- In addition to EAZA, there are other structural/equal drivers of the EEP (e.g., World Pheasant Association, ...). Please describe.*
- A larger initiative exists and the EAZA population is a small part of this (e.g., GSMP, ...). Please describe.*

Essential non-EAZA partners not holding animals *(List the organisations, define their role, and how they will work with the EEP).*

Members of the EEP core group (Species Committee + non-voting members)

- *By default, EEPs have a Species Committee (a democratically elected representation of the holders) as part of their EEP core group (information on the Species Committee and its associated default decision making process can be found in the Population Management Manual). If that will not be the case for this EEP, explain why and define the composition, structure and decision-making process for the EEP core group.*
- *List the EEP core group members (names and institutions) (if already known): Species Committee members, advisors, others.*

Collaboration with EAZA Working Groups and Committees *(Explain any current and/or future proposed links to existing EAZA groups and committees, such as the Animal Training Working Group, Biobanking Working Group, EAZA Group on Zoo Animal Contraception (EGZAC), EAZA Population Management Advisory Group (EPMAG), EAZA Education*

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Committee, EAZA Nutrition Working Group, EAZA Research Committee, Reintroduction and Translocations Group, Transport Working Group, EAZA Veterinary Committee, EAZA Conservation Committee, Animal Welfare Working Group, Palm oil Working Group).

No.

5. Programme characteristics

The detailed programme characteristics, goals, objectives and management strategies to fulfil the roles and goals of the EEP will be developed at a later stage as part of a Long-Term Management Plan (LTMP). The questions below are intended to help paint a rough view of what is currently intended/expected for the general EEP programme characteristics.

- *If there is a recent/active Long-term Management Plan for this species, list the demographic, genetic and other goals determined (if they still apply post RCP workshop).*
- *What is the anticipated duration of the programme?*
- *What is the anticipated likelihood and time scale of the use of the EEP population for restoration in the wild (reintroduction, reinforcement, etc.)?*
- *Are some or all of the individuals within this EEP intended to be held in specialist ex situ centres in the species' native range? Specify.*
- *Is it expected to be necessary that the whole population, or a certain proportion thereof, will need to be held off exhibit in order to fulfil the roles of the programme? If yes, please explain. (this question does not refer to the temporary housing of individuals off exhibit for space reasons)*
- *Does a part or the whole of the EEP population need to be held in bio-secure facilities? And/or are there known diseases that have an above average affect on fulfilling the roles of the EEP?*

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- *What is the expected estimated number of individuals and institutions required to fulfil the selected roles? (this question will be answered in detail during the LTMP session for the taxon, but if some indication of scale is clear already, this should be stated here)*
- *Is this EEP intended to include rearing of wild eggs/young (i.e. head-starting)?*
- *Is this EEP intended to include ex situ breeding?*
- *Is there likely sufficient expertise for this, or a model, taxon to achieve the roles of the programme and provide conditions for good welfare? Please indicate if Best Practice Guidelines already exist and if yes, include publication date.*
- *Will (non-)breeding and transfer recommendations be issued? If yes, with what frequency? (naturally problems will need to be solved all throughout the year, but with what frequency will recommendations be issued for the whole population at once)*
- *Do you anticipate that the EEP population will be (largely) closed or will there be regular planned additions of individuals? In case of the latter, will this be for genetic and/or demographic reasons and what will be the source (other ex situ sources and/or from the wild)?*
- *Do you expect genetic and demographic management in this EEP to be individual and/or group-based?*
- *Do you expect genetic management in this EEP to be based on pedigree analysis, group history analysis, and/or molecular genetics?*
- *Do you anticipate, or proactively plan for, biobanking and/or assisted reproduction to be key components of this programme?*
- *Do you anticipate certain national or international legislation to form a particular hindrance (more than average) to achieving the roles of your EEP (e.g., CITES, BALAI, governmental ownership, etc.). If so, explain how.*

Appendixes

- *Are there any other issues/plans related to in situ conservation support that you feel should be mentioned and are not evident from the role description of the EEP?*
- *Is there a research component/aspect to the EEP that is expected to have important consequences for the design of the EEP programme (e.g. housing and husbandry of a significant proportion of the population, etc.)? If yes, explain.*
- *Do you anticipate there to be any sizeable political, social, or public conflicts of interest related to the EEP programme and how do you plan to deal with them?*
- *Any important additional programme characteristics that you would like to mention?*

6. References (if any)
