CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Twenty-fourth meeting of the Animals Committee
Geneva, (Switzerland), 20-24 April 2009

Conservation and management of sharks and stingrays

REGIONAL WORKSHOP ON SOUTH AMERICAN FRESHWATER STINGRAYS

1. This document has been compiled by the IUCN Species Survival Commission Shark Specialist Group and the Secretariat.

2. Resolution Conf. 12.6 on the Conservation and Management of Sharks directs the Animals Committee to examine information provided by range States in shark assessment reports and other available relevant documents, with a view to identifying key species and examining these for consideration and possible listing under CITES. At its 20th meeting the Animals Committee examined an information document on South American freshwater stingrays, submitted by the Management Authority of Brazil (AC20 Inf. 8).

3. The Animals Committee Working Group recommended that:

   a) Range States for these species jointly examine cross-border trade that may be facilitating illegal trade and consider Appendix III listings, where appropriate, to control illegal exports; and that

   b) the document be revised, with the addition of more species abundance, distribution and trend data, and submitted at CoP13 or AC21.

4. The report of the Animals Committee to the 14 meeting of the Conference of the Parties (CoP14 Doc. 59) included the following recommendations on South American freshwater stingrays:

   a) Encourage the voluntary submission of import and export data by the ornamental fish industry, possibly using a similar protocol to that used for the collection of data in the Global Marine Aquarium Database.

   b) Ensure that the ornamental fish trade industry is made aware of the annual export quota for each species from range States.

   c) Note and learn lessons from the development of the Marine Aquarium Council and, if appropriate, develop a mechanism to address the issues of freshwater stingray conservation.

   d) A CITES Appendix-II listing or other effective export and import control of quotas per species is recommended for consideration by the Animals Committee and Parties within reasonable time, considering the existence of endemic and transboundary populations and that their restriction to freshwater environments makes these stingrays more vulnerable to environmental impacts than marine species.

e) The European Union might consider whether it could be beneficial to list these species on Annex D of the Council Regulation on the protection of species of wild fauna and flora by regulating trade therein (import notifications are required for Annex D-listed species).

5. At its 14th meeting the Conference of the Parties adopted two Decisions regarding the South American freshwater stingrays:

6. ***Decision 14.109 Directed to the Secretariat:***

The Secretariat shall liaise with, as a minimum, the key range States[1] of the family Potamotrygonidae (South American freshwater stingrays), relevant Regional Fishery Bodies, FAO and the ornamental fish industry to facilitate the organization of and seek external funding for a regional workshop that will report at the 23rd or 24th meeting of the Animals Committee. This workshop will:

a) review the distribution and status of the wild populations of this taxon, the role of captive breeding and international trade records;

b) advise on the development of methods for ensuring the sustainable utilisation of and international trade in these species;

c) in consultation with all relevant range States, jointly examine cross-border trade that may be facilitating illegal trade; and

d) develop a cooperative strategy for monitoring and regulating international trade within South America and to other States, taking into consideration the contribution of captive breeding to *in situ* conservation.

7. ***Decision 14.110 Directed to the Animals Committee:***

The Animals Committee shall consider the outputs of the South American freshwater stingray workshop and, in consultation with workshop participants, shall make any necessary species-specific recommendations to range States and to the Conference of the Parties at its 15th meeting on improving the conservation status and regulation of international trade in these taxa.

8. The following pages present the interim draft conclusions of the South American freshwater stingray workshop held on 15–17 April 2009 in Geneva, for the consideration of the Animals Committee.

INTERIM DRAFT REPORT AND CONCLUSIONS

SOUTH AMERICAN FRESHWATER STINGRAY WORKSHOP

GENEVA, 15–17 APRIL 2009

BACKGROUND

1. South American freshwater stingrays are distributed through most Neotropical river basins and occur in 12 countries. The biology and ecology of many species is poorly known, and their taxonomy is not yet resolved, in part because of the highly variable colour patterning of many species. There are probably four genera and over 23 species (Table 1), not all of which have been described. The taxonomic problems and shortage of biological and population data necessary for the development of stock assessments will not be easily resolved for many species and some river basins.

2. These species are K-selected, like other elasmobranchs (sharks and rays), with low fecundity, slow growth, late maturity and small litters of pups, born annually or on alternate years. This makes them susceptible to over-exploitation. Their restriction to a freshwater environment that is vulnerable to habitat damage poses an additional intrinsic threat to these species, particularly the endemics. Their reproductive cycle and movements are often linked to seasonal hydrological conditions.

3. Although international trade is not a major threat to the South American freshwater stingrays, it is one of the problems faced by some species. Uncontrolled cross-border trade is widespread within the region; this is a serious issue in some areas and for some species or populations. There is concern that endemic species (including species not yet described) may be at particular risk if they have a very limited geographic range. It was recognised with concern that rarity and extinction risk greatly increases demand and price in some markets (as, indeed, may listing in the CITES Appendices).

4. For the most part, collection for the ornamental fish trade is an artisanal activity. Fishers target individual newborn and juvenile stingrays, which probably have higher natural mortality rates than adults, and avoid taking slightly damaged but viable fish from the wild population. There is a small, but reportedly growing, market for adults to supply captive-breeding programmes in Asia. In contrast, the much larger-scale industrial food fisheries target adult stingrays.

5. Collection of wild ornamental fishes is an important source of income to some local communities in rural areas. These are high-value low-volume products, in many cases yielding several hundred times more income per kilo than do food fish. Ornamental fish collection can be sustainably managed. Moreover, the high cash value of juvenile stingrays for ornamental trade provides an important incentive for rural communities to retain viable populations of adults in collecting areas. This can discourage the eradication programmes (negative fisheries) that aim to reduce risk of injury to fishers and tourists from stingray barbs in some areas.

Table 1 - List of valid species and their summarized range of distribution.

Species	Basin or River Drainage	Countries
Plesiotrygon iwamae	Amazon	Brazil, Colombia, Ecuador and Peru
Paratrygon aiereba	Amazon, Orinoco	Bolivia, Brazil, Colombia, Ecuador, Peru, Venezuela
Potamotrygon boesemani	Corantijn	Surinam
Potamotrygon brachyura	Paraná, Rio de la Plata, Uruguay, Paraguay	Argentina, Brazil, Paraguay, Uruguay
P. castexi	Amazon, Paraná, Paraguay, Guaporé	Argentina, Bolivia, Brazil, Paraguay, Peru

Species	Basin or River Drainage	Countries
P. constellata	Amazon	Brazil, Colombia, Ecuador, Peru
P. dumerilii	Amazon, Paraná, Paraguay	Argentina, Brazil, Paraguay
P. falkneri	Cuiabá, Paraná, Paraguay	Argentina, Brazil, Paraguay, Peru
P. henlei	Amazon	Brazil
P. histrix	Paraná, Paraguay (and Uruguay?)	Argentina, Brazil, Paraguay (and Uruguay?)
P. humerosa	Amazon	Brazil
P. leopoldi	Amazon	Brazil
P. magdalenae	Magdalena, Atrato	Colombia
P. marinae	Oyapok, Maroni	French Guiana
P. motoro	Amazon, Orinoco, de La Plata	Argentina, Bolivia, Brazil, Colombia, Ecuador, French. Guyana, Guyana, Paraguay, Peru, Surinam, Uruguay, Venezuela
P. ocellata	Amazon	Brazil
P. orbignyi	Amazon, Orinoco, Paraná, Paraguay	Argentina, Brazil, Bolivia, Colombia, French Guyana, Guyana, Paraguay, Peru, Surinam, Uruguay, Venezuela
P. schroederi	Amazon and Orinoco	Brazil, Colombia, Venezuela
P. schuemacheri	Paraná, Paraguay	Argentina, Brazil, Paraguay
P. scobina	Amazon basin	Brazil, Ecuador
P. signata	Parnaíba basin	Brazil
P. yepezi	Maracaibo basin	Colombia, Venezuela
Potamotrygon sp. "cururu"[1]	Negro basin	Brazil
Potamotrygon sp. "itaituba"[2]	Tapajós river basin	Brazil
Potamotrygon sp. "pearl"[2]	Tapajós river basin	Brazil

[1] obs. Despite being undescribed, this species is included because it is legally exported from Brazil under the quota system regulation as *Potamotrygon* cf *histrix*.

[2] obs. Despite being undescribed, these species are included because they are endemic valuable species that are being illegally exported.

6. On the other hand, the collection of ornamental fish from the wild is a very vulnerable industry. It depends upon providing a wide diversity of species, because the market demands variety. Trade demand for wild-caught ornamental fishes weakens if the variety of species from wild sources is reduced. Furthermore, because stingrays have a high individual value, they also increase the total value of ornamental fish shipments dominated by much lower value species, and improve the cost/benefit ratio of each shipment. When Brazil halted stingray exports for two years, Brazilian exporters were no longer able to provide the variety that the market demanded and exports of other species also declined. There was also an increased export of wild-caught ornamental fishes (of all species) from other exporting countries in South America. When stingray trade from Brazil reopened, the value and volume of all ornamental fish exports rose steeply. This demonstrates the importance of coordinating exploitation and trade management measures across all countries of origin in the region.

7. Many popular ornamental species can now be captive-bred. This is undertaken on a large scale in Asian countries, both for domestic markets and for export to other parts of the world. International transport costs are lower from major Asian centres than from remote areas of South America, and

captive breeding is now providing a wider range of colour patterns from hybrids. Freshwater stingray breeding operations were underway in Asia before the adoption of a moratorium on export of stingrays from Brazil, and have continued to expand significantly.

8. Although the dependence of the global ornamental fish industry upon Amazonian wild-caught fishes is falling, the socio-economic importance of ornamental fishes to Amazonian fishing communities remains high. Ex-situ breeding is not, therefore, considered to be a viable substitute for managing wild capture fisheries sustainably. Indeed, it poses a serious threat to the wild-capture ornamental fisheries that provide significant benefits to rural communities. There is also concern that illegally obtained wild-caught specimens may be "laundered" as captive bred.

Cross-border trade and methods for ensuring the sustainable utilisation of Potamotrygonidae

9. The participation of the CITES Secretariat legal expert was important to this discussion. All participants contributed with information from their countries regarding existing regulations on the exploitation and commerce of freshwater stingrays, and of other general regulations that might be applicable to these activities (Table 2). The observer from FAO mentioned that his organisation holds a database of all forms of national legislation related to this issue (www.xxxxx)

Table 2 - List of legal regimes found in each of the range states.

Country	Legal regimes
Brazil	General fishing permits required. Specific national export quota system regulation for six species (*Potamotrygon* cf. *histrix, P. motoro, P. leopoldi, Potamotrygon* cf. *henlei, P. orbignyi, P. schroederi,*).
Colombia	No information available.
Ecuador	In general ornamental fishery takes place in an illegal way, there are only three companies with a specific permit for legal ornamental fish extraction. There is specific regulation for collecting ornamental fish as long as the species is not listed under CITES Appendix I or II.
Paraguay	General regulation for internal and external commerce.
Peru	Multi-specific fishing permits required. There are seasonal fishery bans for some regions (mainly Nanay River in Loreto) and fishing restriction in protected areas (national parks and reserves).
Uruguay	General regulation for internal and external commerce.
Venezuela	No regulations for food purposes (*P. aiereba*). For ornamental purposes there is a general regulation on capture areas and seasons that apply for all ornamental species in general.

10. It was recognised that regulation and management measures intended to combat illegal activities must be developed with careful consideration of their potential impact upon the sustainable legal trade from wild-caught fisheries that they are, in part, intended to protect.

Utilisation and trade

11. The observer from FAO reported that FAO has not been provided with any catch or trade data for these taxa. At the present time, therefore, FAO cannot assist with analyses of utilisation or trade in freshwater stingrays.

12. Participants discussed data on exploitation and trade in their countries. Tables 3 and 4 summarise the information available at the workshop.

Table 3 – Types of exploitation within range States.

Country	Fisheries / Uses	Observations
Brazil	Ornamental, food (bycatch, subsistence, commercial), sport, negative and folklore uses (bycatch).	Some species are more valuable (mainly endemics). Industrial scale fishery for food use. Limited sport fishery. Negative fishery associated to tourism and sport fishery. Occasionally caught for medicinal purposes (liver oil).
Colombia	No information available.	No information available.
Ecuador	Ornamental, food (subsistence as bycatch) and folklore uses (bycatch).	Taken at very low levels for food purposes. Indigenous uses of the sting.
Paraguay	Ornamental and food (subsistence as bycatch).	Limited ornamental fishery and rare use for food purposes.
Peru	Ornamental, food (subsistence as bycatch) and folklore uses (bycatch).	Most common ornamental species are *P. motoro* and the tiger stingray (*P. falkneri*?). Taken at very low levels for food purposes. Indigenous uses of the sting.
Uruguay	Food (subsistence as bycatch).	Rarely taken as a food source.
Venezuela	Ornamental, food (commercial, subsistence, bycatch), folklore uses.	Low and local ornamental market for *P. motoro*, *P. schroederi*, *P. orbignyi* and *P. yepezi*. Only *Paratrygon aiereba* taken as food in the Apure River (from 1996-2002, 2.7 ton caught, present situation unknown). Indigenous use as food (bycatch) and uses of the sting (Alto Orinoco River). Occasionally caught for medicinal purposes (liver oil). Until around 1950 skin used as shagreen.

Table 4 – Observations on cross-border trade in freshwater stingrays.

Country	Cross-border trade in potamotrygonids	
	Present	Observations
Brazil	Yes	Illegal cross-border trade in species not included in the quota system.
Colombia	Unknown	No information available.
Ecuador	Yes	The Napo area is a collecting area and the Putumayo basin is an area of illegal traffic route.
Paraguay	No	Illegal cross-border trade is not reported for this country.
Peru	Yes	Cross-border trade occurs without regulation, mainly in the Putumayo basin (bordering Colombia), low Yavari and Purus (bordering Brasil), probably Madre de Díos (bordering Bolivia) and others.
Uruguay	No	Illegal cross-border trade is not reported for this country.
Venezuela	Yes	Mainly 3 species (*P. motoro, P. schroederi* and *P. orbignyi*) being taken from Venezuela to Colombia, through 2 ways: Orinoco and Ventuari confluence area (Amazonas State) to Puerto Inírida (Colombia), from Puerto Ayacucho (Venezuela) to Puerto Carreño (Colombia). Perhaps other non-identified species too.

CONCLUSIONES

1 El grupo concluyo que existen problemas con la taxonomía de esta familia que aún no se han podido resolver y que quizás demande un gran tiempo, esfuerzo y recursos. A su vez no se han logrado las informaciones biológicas y poblacionales necesarias para generar modelos de evaluación robustos en la mayoría de las especies y cuencas. Sin embargo todos los participantes estuvieron de acuerdo en que esto no debe ser un obstáculo para implementar medidas de conservación y manejo precautorias.

2 Todos los participantes declararon la existencia de diversos impactos sobre las rayas de agua dulce. Entre otros, estos incluirían pesca artesanal con fines de comercialización alimentaria y/o ornaméntale, pesca industrial y by-catch, pesca deportiva, pesca negativa[1], deterioro de hábitats.

3 Se observo por parte del grupo, que las estrategias de vida de estas especies, basada en los datos conocidos hacen que las mismas sean sumamente vulnerables a los impactos antropogénicos. Por lo tanto, se debe actuar bajo un principio precautorio[3] sobre la explotación de estas especies, hasta tanto no se logren las evaluaciones poblacionales necesarias para embasar una explotación sustentable.

4 El grupo entendió como algo sumamente importante la realización de un diagnóstico de la situación de las rayas de agua dulce en Sudamérica. Este documento serviría como línea de base del conocimiento de este grupo taxonómico a nivel regional y permitiría definir las futuras líneas de acción en la investigación, conservación, explotación, comercio y control. Para este documento se requerirían fondos que permitan la realización de reuniones regionales, así como los necesarios para la edición y publicación del documento.

5 El grupo concluyo que existe comercio ilegal transfronterizo de rayas de agua dulce en gran parte de la región de distribución de las especies y que es necesario tomar acciones tendientes a controlar este comercio. Dichas acciones deberán tener en cuenta, en todos los casos, los efectos socio-económicos que puedan causar sobre los pobladores locales.

CONCLUSIONS

The workshop concluded that there are taxonomic problems with this Family that might take some time, effort and resources to resolve. At the same time, the necessary biological and population data have not been obtained in order to enable the development of robust stock assessment models for the majority of species and basins. However, all the participants agreed that this should not represent an obstacle to the implementation of precautionary conservation and management.

All participants agreed that a variety of impacts affect freshwater stingrays. These include artisanal fisheries for food and/or ornamental markets, industrial target and bycatch fisheries, sport fishery, negative fishery[1], and habitat deterioration, among others.

The workshop observed that the life history strategies of these species, based on known information, make them extremely vulnerable to anthropogenic impacts. For these reasons, it is necessary to take a precautionary approach regarding the exploitation of these species, until the necessary population assessments are available as a basis for sustainable exploitation.

The workshop understood that it is extremely important to develop a diagnosis of the status of freshwater stingrays in South America. This document would provide a baseline of knowledge for this taxonomic group at a regional level and enable future courses of action to be defined for research, conservation, exploitation, trade and regulation. In order for this document to be prepared, funds will be needed to organise regional meetings, and for editing and publication.

The workshop concluded that there is illegal cross-border trade in freshwater stingrays in a great part of the range of distribution of these species, and that it is necessary to take action to control this trade. Such actions should always take into account the socio-economic effects that they could have on local populations.

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[1] *Mutilación, o matanza y descarte, con el propósito de reducir el riesgo de lastimar pescadores y turistas con el aguijón.*

Mutilation, or killing and discarding, with the aim of reducing risk of injury to fishers and tourists from barbs.

6	Se entendió que los marcos regulatorios generales con los que cuentan los países, quizás pueden servir para la regulación tanto de la captura como del comercio de las rayas de agua dulce y que esto debería ser analizado en mejor medida por cada una de las Partes.	It was understood that the countries' general regulatory frameworks might be useful to regulate the capture and trade of freshwater stingrays. This should be analysed in more detail by each of the Parties.
7	Existen diferentes métodos de control y monitoreo utilizados en otros grupos taxonómicos (microchips, certificados de trazabilidad, etc.) que podrían ser aplicados en las rayas de agua dulce.	Various methods are utilised to control and monitor the utilisation of other taxonomic groups (microchips, certificates of origin *etc*.) that could be applied to freshwater stingrays.
8	Las diferentes organizaciones regionales, como el Comité Intergubernamental Coordinador de los paises de la Cuenca del Plata (CIC), La Comisión de Pesca Continental para América Latina (COPESCAL), Organización del Tratado de Cooperación Amazónica (OTCA), entre otras, son instrumentos existentes que podrían facilitar la cooperación para garantizar el uso sostenible de las rayas de agua dulce.	Various regional organisations, such as the Intergovernmental Coordinating Committee of the countries of the Basin del Plata (CIC), the Continental Fisheries Commission for Latin America (COPESCAL), and the Amazon Cooperation Treaty Organisation (OTCA), among others, are existing agreements that could facilitate cooperation to ensure the sustainable use of freshwater stingrays.
9	Todos los participantes estuvieron de acuerdo, en base a los resultados obtenidos en este taller, que es necesario continuar con la realización de reuniones técnicas que aborden aspectos de investigación, legislación, conservación y manejo para las rayas de agua dulce, con fines de mejorar el conocimiento y las capacidades en la región.	All participants agreed, based on the findings of this workshop, that it is necessary to continue with the organisation of technical meetings on aspects of research, legislation, conservation and management for freshwater stingrays, in order to improve understanding and build capacity in the region.
10	Se entendió que la iniciativa de Brasil, en la medida de sus posibilidades, de organizar en el año 2010 un "Taller de Rayas de agua dulce con fines ornamentales en Sud América" sería muy importante. Este taller abordaría diferentes aspectos incluido el comercio transfronterizo.	It was understood that Brazil's initiative to organise in 2010, to the extent possible, a "South American Workshop on the ornamental use of freshwater stingrays" would be very important. This workshop would cover various aspects, including cross-border trade.
11	El grupo entendió que la inclusión de especies en el Apéndice III de CITES podría mejorar las regulaciones y el control del comercio internacional reduciendo las exportaciones ilegales, el apoyo a la gestión regional y los esfuerzos de aplicación y la mejora de la recogida de datos sobre el comercio. Tales acciones podrían contribuir a la conservación y gestión de especies amenazadas o endémicas de las rayas de agua dulce en América del Sur.	The workshop understood that listing of species in Appendix III of CITES can improve the regulation and control of international trade by reducing illegal exports, supporting regional management and enforcement efforts, and enhancing the collection of trade data. Such actions could contribute towards the conservation and management of threatened or endemic species of freshwater stingrays in South America.
12	Todos los participantes estuvieron de acuerdo en la necesidad de contar en las futuras reuniones con representantes de todos los países del área de distribución de las rayas de agua dulce de sud América.	All participants agreed on the need for future meetings to be attended by representatives of all of the range States for freshwater stingrays in South America.