

CITES Identification Guide - Sturgeons and Paddlefish

Guide to the Identification of Sturgeon and Paddlefish Species Controlled under the Convention on International Trade in Endangered Species of Wild Fauna and Flora



Guide d'identification CITES - Esturgeons et spatules

Guide d'identification des esturgeons et spatules protégés par la Convention sur le commerce international des espèces de faune et de flore sauvages menacées d'extinction



Guía de identificación de CITES - Esturiones y espátulas

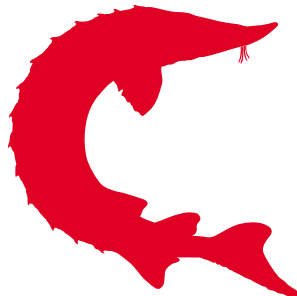
Guía de identificación de los esturiones y espátulas protegidos por la Convención sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres



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TRAFFIC Europe

TRAFFIC Europe is part of the global TRAFFIC Network, a worldwide trade monitoring programme for fauna and flora. TRAFFIC (Trade Records Analysis of Fauna and Flora in Commerce) is a joint programme of the World Wide Fund for Nature or World Wildlife Fund (WWF) and The World Conservation Union (IUCN). Established in 1976, TRAFFIC is now a network of 22 offices organized in eight regional programmes and composed of about 80 staff members.

TRAFFIC's vision is that wildlife trade will be managed at sustainable levels, with due regard to its direct and indirect impacts on biological systems, and that it makes a significant contribution to meeting human needs, supporting local and national economies and motivating commitments to conserve species and their habitats. TRAFFIC aims to help ensure that trade in wild plants and animals is not a threat to the conservation of nature.

TRAFFIC Europe

TRAFFIC Europe fait partie du réseau TRAFFIC, un programme à échelle mondiale de surveillance du commerce de la faune et de la flore sauvage. TRAFFIC (Trade Records Analysis of Fauna and Flora in Commerce) est un programme conjoint du Fonds mondial pour la nature (WWF) et de l'UICN – l'Union mondiale pour la nature. Établi en 1976, TRAFFIC est à présent un réseau de 22 bureaux couvrant huit programmes régionaux et composés d'environ 80 personnes.

TRAFFIC vise à assurer que le commerce des espèces sauvages soit géré de manière durable, en mettant l'accent sur les impacts direct et indirect du commerce sur les systèmes biologiques et sur sa contribution substantielle aux besoins humains, en supportant les économies locales et nationales et motivant les engagements à conserver les espèces et leur habitat. TRAFFIC s'applique à assurer que le commerce des plantes et animaux sauvages ne représente pas une menace pour la conservation de la nature.

TRAFFIC Europa

TRAFFIC Europa forma parte de la red TRAFFIC, un programa a escala mundial de vigilancia del comercio de la fauna y la flora silvestres. TRAFFIC (Trade Records Analysis of Fauna and Flora in Commerce) es un programa conjunto del Fondo Mundial para la Naturaleza (WWF) y de la UICN, la Unión Mundial para la Naturaleza. TRAFFIC, establecido en 1976, es actualmente una red de 22 oficinas que cubren ocho programas regionales y están compuestas de aproximadamente 80 personas.

TRAFFIC tiene por objeto asegurar que el comercio de especies silvestres se administre de forma duradera, poniendo énfasis en los impactos directos e indirectos del comercio sobre los sistemas biológicos y en su considerable contribución a las necesidades humanas, apoyando las economías locales y nacionales y motivando los compromisos de conservar las especies y su hábitat. TRAFFIC se dedica a asegurar que el comercio de plantas y animales silvestres no represente una amenaza para la conservación de la naturaleza.

Rufford Foundation

The Rufford Foundation is a charitable grant-making foundation which was established in June 1982. The Foundation assists a wide variety of charities and has a special interest in nature conservation, the environment and sustainable development. The Rufford Foundation tends to concentrate on projects in non first world countries.

La Fondation Rufford

La Fondation Rufford est un organisme caritatif créé en juin 1982. Par le biais de subventions, elle aide une vaste gamme d'oeuvres de bienfaisance vouées à la protection de la nature, à l'environnement et au développement durable. La Fondation Rufford s'intéresse particulièrement aux projets menés dans des pays non industrialisés.

La Fundación Rufford

La Fundación Rufford es una institución de beneficencia establecida en junio de 1982. Subvenciona y ayuda a una gran variedad de obras benéficas y tiene un especial interés en la conservación de la naturaleza, el medio ambiente y el desarrollo sostenible. En general, concentra sus proyectos en países poco industrializados.

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Preface

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The Convention on International Trade in Endangered Species of Wild Fauna and Flora, commonly referred to as CITES, was adopted in 1973 and came into force on July 1, 1975. By early 2001, there were 152 contracting Parties to this intergovernmental treaty.

CITES regulates international trade in threatened species, whether it involves live or dead specimens or their parts and derivatives. The most endangered species can be found in Appendix I of the Convention and commercial trade in these plants and animals is prohibited. Over 300 plant species and 500 animal species are listed in this Appendix. Appendix II lists more than 30,000 plants and animals, which will be threatened with extinction if their trade is not carefully regulated. The majority of sturgeon species are listed in Appendix II.

CITES has controlled few forms of wildlife trade with the history of illegal activities as the trade in caviar. The involvement of organized crime in the caviar trade has been well documented and enforcement personnel have been killed trying to combat sturgeon poaching.

Sturgeon species have existed since pre-history but many are now seriously threatened with extinction. Future efforts to conserve sturgeons must take into account socio-economic factors, water pollution, destruction of habitat and reduced access to traditional spawning grounds. Implementation and enforcement of the Convention can, however, have a major beneficial effect. That is why the CITES Secretariat believes this Guide will be of substantial assistance to enforcement staff in their efforts to tackle illegal trade in sturgeon and sturgeon products and is delighted to be associated with its publication.



Willem W. Wijnstekers
Secretary General
CITES Secretariat

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The material in this book is the culmination of 5000 hours of scientific illustrations and 3 years of travel and time spent in six countries (Russia, Romania, Hungary, Austria, Canada, United States of America). Slides taken with a high focal length lens served as a detailed reference for my renderings. Each illustration is of an individual fish and is extremely accurate.

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How to use this guide

Message to customs officers and other inspectors responsible for enforcing CITES

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Several species of sturgeon have become endangered due to the destruction of their natural habitat and to intensive international trade in caviar and products derived from the species. **You can help change this situation** by participating actively in controlling this trade in your country.

This guide was created to enable you to identify sturgeons, of which all species are protected by CITES (see **?-2**). It is designed to meet a need expressed by customs officers from various countries for an identification tool that is **easy to use. No previous knowledge of sturgeons is required.** By following the steps described, you will be able to identify the species of sturgeons currently traded in the world.

The basic structure of this guide is similar to the CITES Identification Guides previously produced by Environment Canada (*CITES Identification Guide – Birds*, *CITES Identification Guide – Crocodilians*, *CITES Identification Guide – Turtles and Tortoises*, *CITES Identification Guide – Butterflies*).

The **key pages in the green section** of the guide present illustrations which highlight the morphological characteristics that distinguish different species. You begin the identification process by comparing the morphological features of your specimen with those illustrated in these key pages. From here, you will be directed to the **descriptive pages in the blue and yellow sections**, where you will find illustrations of the species and additional information that will help to confirm your identification.

The blue section of the guide contains illustrations of the most easily recognized species. You will have no difficulty identifying these species. This section will help you to sharpen your powers of observation, preparing you for the yellow section.

The yellow section contains species that are sometimes very similar in appearance. It is critical to pay close attention to details in order to distinguish one species from another. With practice, you will be able to identify virtually all species found in these two sections with relatively little difficulty.

The guide can be used by any CITES-enforcement officer, from beginner to expert. The level of difficulty increases from the blue section to the yellow section.

The orange section presents a table summarizing the characteristics of each species. There may be times, however, that you are unable to identify a specimen. In such cases, identification of the specimen should be referred to an expert who is specialized in ichthyology (the branch of science dealing with fish) and who has been identified by CITES authorities in your country as a resource person.

Before you begin working with the guide, be sure to read the introduction in the purple section, which describes the identification process. You will then be ready to take up the identification challenge. We are confident that you will succeed with flying colours.

How to use this guide

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What is CITES?

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement signed by more than 150 countries that regulates trade in a number of species of plants and animals, their parts and derivatives. The names of these species appear in a **Control List** that is updated every two years, following the meeting of the Parties to the Convention. The list provides the names of CITES species and indicates whether they are Appendix I, II or III species.

Appendix I species are rare or endangered. Trade in these species for primarily commercial purposes is prohibited. As a result, Appendix I species must be accompanied by a CITES export permit issued by the exporting country and a CITES import permit issued by the importing country.

Appendix II species are neither rare nor endangered at present, but could become so if trade is not regulated. The species in Appendix II must be accompanied by an appropriate CITES export permit issued by the exporting country before entry to the importing country will be allowed.

Appendix III species are not endangered but are subject to special management within the listing country (as indicated in parentheses beside the Appendix number). Species in Appendix III must be accompanied by an appropriate CITES export permit issued by the exporting country if the trade is with the listing country, or by a certificate of origin or a re-export certificate if the trade is with a country other than the listing country, as required by the Convention.

Note this icon used throughout the guide:



Appears with Appendix I, II or III species, indicating trade is regulated by CITES and must be verified by the necessary CITES permit(s)

What species are illustrated in the guide?

The 27 species of sturgeon are illustrated in the blue and yellow sections of the guide. The illustrations present a lateral view of the entire specimen, lateral and ventral views of the anterior part of the specimen, and morphological variations for some species. The illustrations always depict the adult specimen of the nominal species (e.g., *Huso huso*).

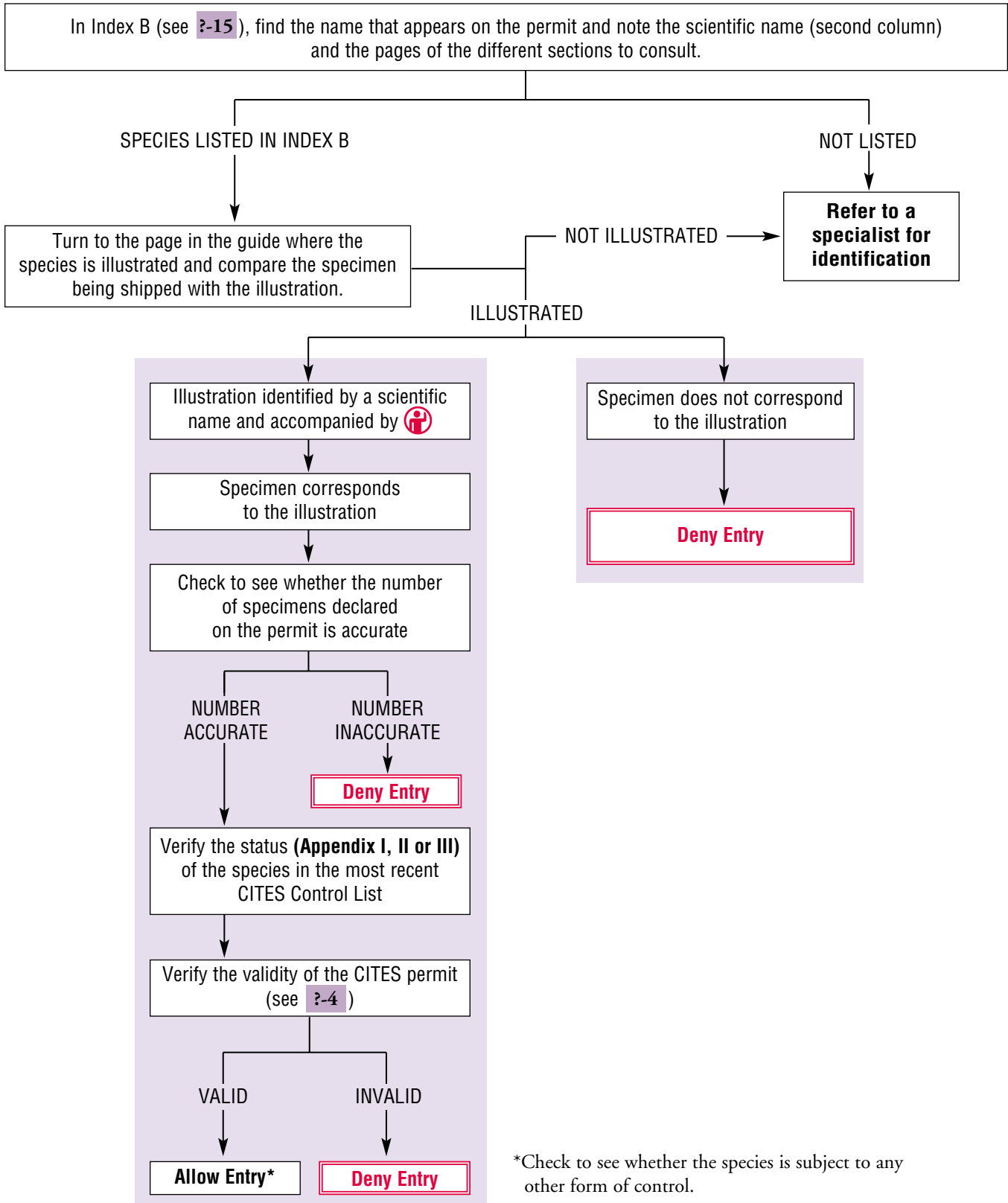
In addition to the illustrations, there are maps of the natural distribution of each species, information on trade in that species and photographs of the labels of caviar jars containing caviar of the species in question, when the caviar is subject to trade.

The key presented in the guide does not apply to hybrids. The identification of hybrids must be referred to an expert.

How to use this guide

I must verify the identification of a sturgeon declared on a CITES permit:
what do I do?

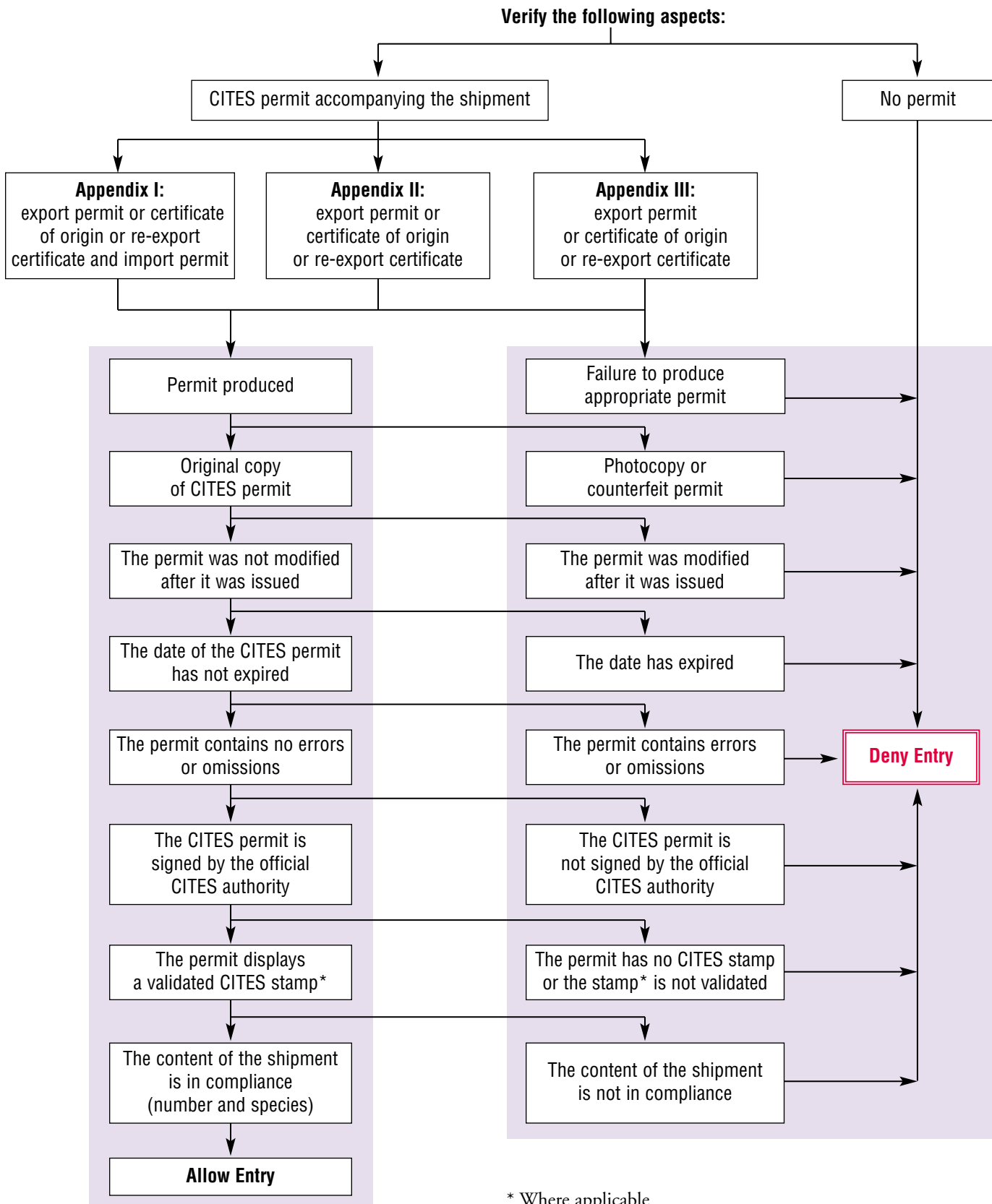
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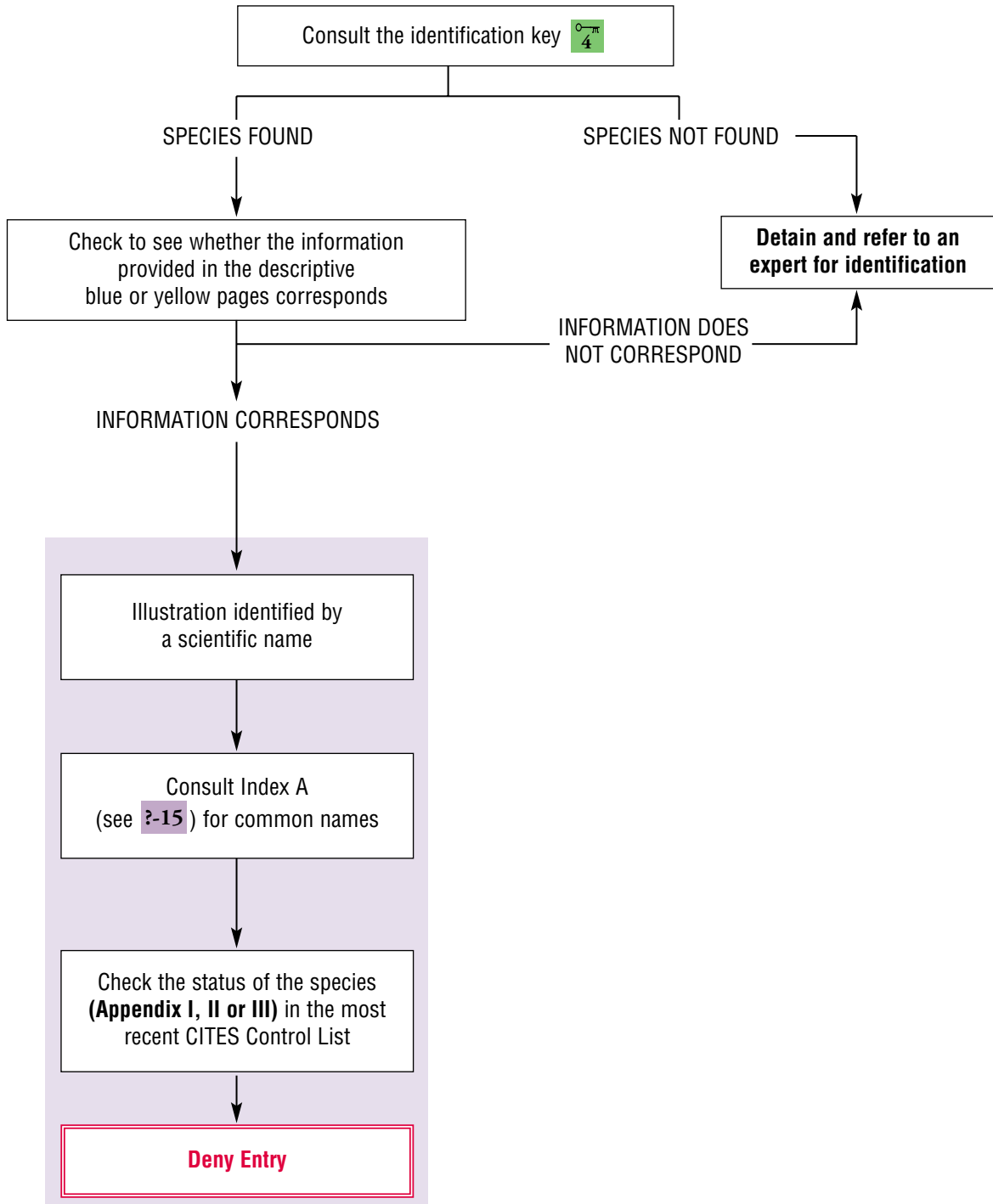
How to determine the validity of a CITES permit



How to use this guide

I must identify a sturgeon that is not accompanied by a CITES permit:
what do I do?

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


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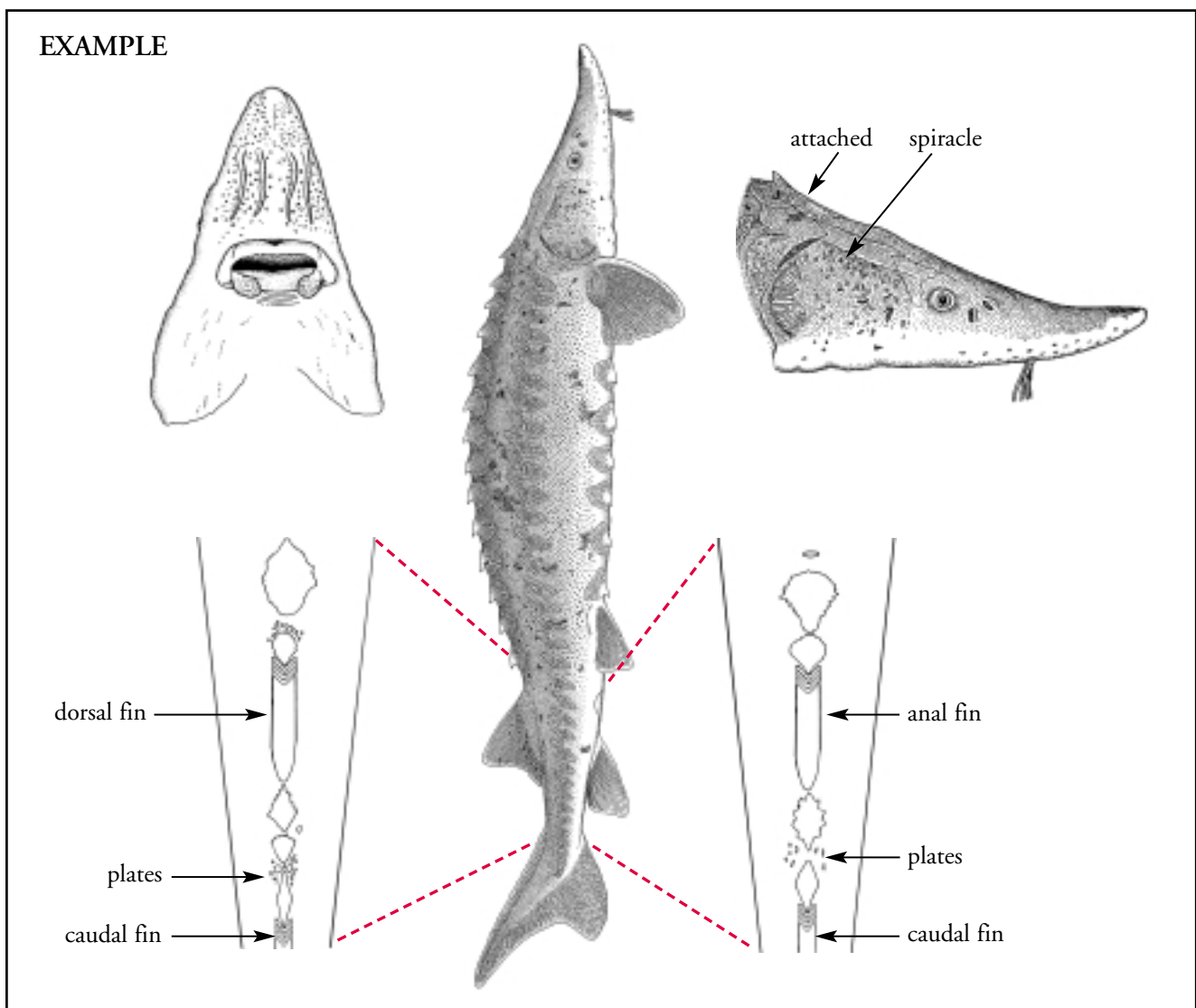
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Example of the identification process

The identification process is based on an examination of a number of the specimen's morphological characteristics. By following the process in the key, you will be able to identify the most probable species. Using the illustrations and information provided in the blue or yellow descriptive pages, you will be able to confirm the identification.

The morphological features of sturgeons vary from specimen to specimen and also as a function of age. For example, the shape of the snout and the definition of the scutes (see ) can vary from one specimen to another. In young specimens, the scutes are clearly defined, but as sturgeons age, they smooth out; and in some species, such as *Huso huso*, *Acipenser fulvescens* and *Acipenser nudiiventris*, scutes may disappear completely.

A number of important features are identified in the descriptive pages. If after completing the key you have any doubts concerning your identification, do not hesitate to consult an expert. Take, for example, the sturgeon illustrated on this page.



How to use this guide

The first step consists of familiarizing yourself with the morphological characteristics that will be used in the identification key. Illustrations of these characteristics and definitions of the terminology used are found on key pages **1** to **3**. Once you are familiar with the terms, you can begin the identification process using the key beginning at page **4** and working through to page **14** inclusively, in that order. The key is a dichotomic key; meaning it always offers the user two choices.

In **Nº 1**, we are asked whether or not there are scutes or bony plates on the body and if barbels are present. We can count five rows of scutes on our specimen and can see there are four barbels between its mouth and the tip of its snout, therefore we go to statement **Nº 2**.

In statement **Nº 2**, we look at the shape of the snout and the presence or absence of a spiracle. Does the specimen have a flat, spatula-shaped snout or a conical snout? Is there a spiracle behind the eye? Because the snout of our specimen is conical with rounded sides and there is a spiracle, we go to **Nº 3** on page **5** to continue the identification.

The mouth of our specimen is small and transverse, opening downwards. Its barbels are round. We can therefore determine it is a member of the genus *Acipenser* and we are referred to statement **Nº 7** on page **7**, to identify the species.

At **Nº 7**, we must look at the depth of specimen's body. Is the greatest body depth at the first scute or further back? Is the first dorsal scute the largest? By observing our specimen's profile, we see the greatest body depth is further back than the first scute and that the first dorsal scute is not the largest. We go to statement **Nº 9** on page **8**.

Does our specimen have post-dorsal plates, post-anal plates, or both? We see that it has post-dorsal plates between the caudal fin and the dorsal fin and post-anal plates between the caudal fin and the anal fin. We move on to statement **Nº 10** on the same page.

At this point we must determine whether or not there are plates on the right and left side of the specimen's anal fin base. There are none, and we go to **Nº 11**.

Now, let's look at the specimen's head. Is the first dorsal scute separated from or attached to the head? We see that it is attached to the head, which means we go to statement **Nº 12**.

How to use this guide

This statement draws attention to two criteria: the presence or absence of a green band located between the rows of ventral and lateral scutes, and the shape of the barbels. Is there a green band? Our specimen has none and since the barbels are not fringed we go to **Nº. 13**.

Here the number of rays on the anal fin is used to distinguish between several species; it is important to count the rays. Are there more or less than 23 rays? Our specimen has more than 23 rays on its anal fin. In addition, the lateral scutes are almost the same colour as the body and the mouth is narrow. We go to statement **Nº. 14**.

Here we are asked to determine the number of plates between the dorsal fin and the caudal fin, as well as the colour of the lateral scutes. Our specimen has fewer than 3 post-dorsal plates and the colour of the lateral scutes is not noticeably different from the body colour.

We have determined that our specimen is likely *Acipenser fulvescens*. The next step is to turn to descriptive page **16** to confirm our identification.

By checking the information provided on this page and examining the illustrations, we can confirm our identification. Page **16** reviews the key characteristics of the species and provides a list of similar species. On the next page are illustrations of juvenile forms and an adult over 80 cm. Page **18** provides lateral, dorsal and ventral views, detailing the distribution of the plates and scutes. Check the species distribution map to verify a shipment's potentially fraudulent declaration of origin. Finally, the table in the orange section (see **1**) provides additional information on the species.

You have confirmed the scientific name of your specimen: *Acipenser fulvescens*.


Once you know the scientific name of the species, turn to Index A (see **?-15**) to find the common names in other languages. Because all sturgeons are protected by CITES, apply the customs formalities required for CITES controls. To do so, first check the status of the species (Appendix I, II or III) in the most recent CITES Control List. Then verify the validity of the CITES permit(s) required depending on the status of the species (see **?-4**). If the permit(s) is(are) valid, the species can be brought into the country unless it is subject to additional controls in your country.

Note:
Acipenser fulvescens
↑ ↑
genus species


How to use this guide


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What is the purpose of the coloured tabs?

The  section contains the introductory pages, which explain **how to use this guide** and the **Information about sturgeons**, which describes the sturgeon trade.




The  section contains the key pages where the **identification process begins**.

The blue section  section contains the illustrations of species of **sturgeons that are easily recognized**.


The yellow section  contains illustrations of species of **sturgeons that require closer observation** when making an identification.

The orange section  contains a **table summarizing the characteristics of each species**.

A

The grey section  contains **Index A**, which provides the **scientific names** of all illustrated species. The scientific names are in alphabetical order and are accompanied by their **common names** in English, French and Spanish.

B



The dark grey section  contains **Index B**, which provides an **alphabetical list of the scientific and common names of each species**. It also includes the pages where they are found in the guide.






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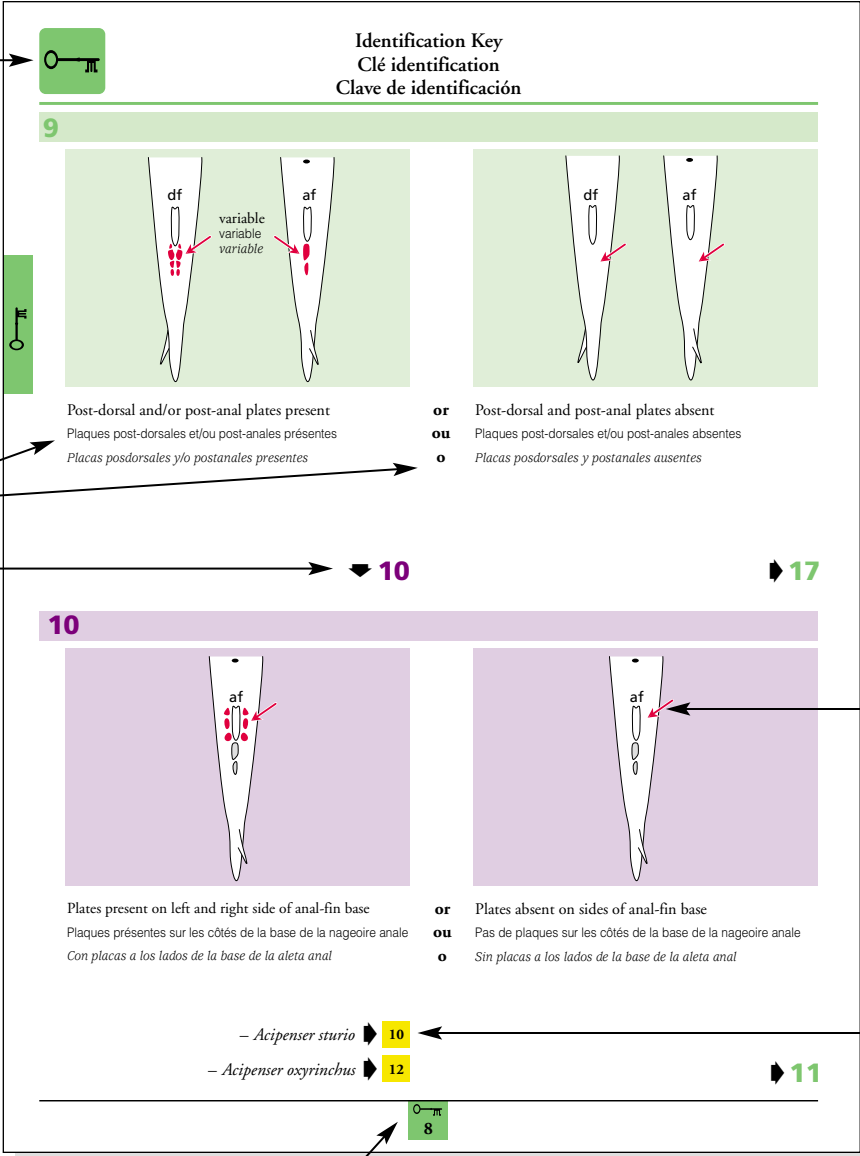
How to use this guide

E ?

What is the purpose of the key pages?

Key pages  to  describe the morphological characteristics of the sturgeons used in the identification key, and provide definitions of the technical terms used in the key.

The identification key begins on  through to . You will also find, on pages  to , photographs of sturgeon parts and derivatives and, on page , photographs of a species sold to aquarium breeders.



The screenshot shows a page from an identification key titled "Identification Key / Clé identification / Clave de identificación". The page is numbered "9" in a green header. It features two columns of diagrams and text. The left column shows diagrams of a sturgeon's head and tail with labels "df" and "af", and red dots representing plates. The right column shows similar diagrams but with different plate arrangements. Below the diagrams are two columns of text, each starting with "Post-dorsal and/or post-anal plates present" (or absent) in English, followed by translations in French and Spanish. The text is separated by "or" and "ou".

Annotations on the page include:

- Icon identifying the key pages:** Points to the key icon in the top left corner.
- Two alternative statements:** Points to the two columns of text describing plate presence/absence.
- Number of the next statement to consult:** Points to the numbers "10" and "17" in the right margin.
- Arrow indicating an important detail:** Points to a red arrow in the diagram of the anal fin base.
- First descriptive page to consult:** Points to the list of species at the bottom: "*Acipenser sturio*" (page 10) and "*Acipenser oxyrinchus*" (page 12).
- Current key page:** Points to the key icon in the bottom right corner, labeled "8".

How to use this guide

E ?

What is the purpose of the descriptive pages?

The descriptive pages illustrate the various species of sturgeon paying particular attention to the distribution of plates and scutes over the body. They also contain geographical distribution maps and sample labels from caviar jars known to contain eggs of the current species.

Icon indicating that the species is subject to CITES control

Species scientific name: *Huso* is the genus, *huso* is also the species name

CITES control information for the family

Unique feature

Icons of parts and derivatives

Acipenseridae: 25 Spp. I or/ou/o II 0 Sp.

barbels foliate
barbillons foliacés
barbillas foliáceas

Black Sea stock, 200 cm, shorter snout than Caspian stock
stock de la mer Noire, 200 cm, museau plus court que chez le stock de la Caspienne
población del mar Negro, 200 cm, obsérvese que tiene el hocico más corto que en la población del mar Caspio

joined joints
jointes unidas

Caspian stock, longer snout
stock de la Caspienne, museau plus long
población del mar Caspio, hocico más grande

sub-adult
sub-adulte
sub-adulto

juvenile, 23 cm
juvénile, 23 cm
joven, 23 cm

Huso huso

Acipenser ruthenus

black body, scutes and denticles well defined
corps noir, écussons et denticules définis
cuerpo negro, escudos y denticulos bien definidos

Similar species / Espèce semblable / Especie semejante : *Huso dauricus*

Current descriptive page

Next descriptive page to consult

Arrow indicating an important characteristic

Page numbers of similar species needed for comparison

How to use this guide

E ?

What is the purpose of the descriptive pages? (cont'd)

Huso huso

Caviar jars known to contain eggs from *Huso huso*

Dorsal view of plates Ventral view of plates

Huso huso

lateral
latérale
lateral

dorsal
dorsale
dorsal

ventral
ventrale
ventral

plates absent
plaques absentes
placas ausentes

Lateral view of scutes

Distribution map

5 → 6

4 → 5

The image is a composite of several elements. At the top left, there is a grid of nine caviar jars with various labels like 'CASPIAN CAVIAR', 'BERGAMINI CAVIAR', and 'CASPIAN SEA CAVIAR'. An arrow points from the text 'Caviar jars known to contain eggs from *Huso huso*' to this grid. Below the jars, there are anatomical diagrams. On the left, a 'Lateral view of scutes' shows a vertical column of scutes. In the center, 'Dorsal view of plates' shows a vertical column of plates with labels 'lsdr' and 'df'. On the right, 'Ventral view of plates' shows a vertical column of plates with labels 'a' and 'af'. A red arrow points to the ventral view with the text 'plates absent / plaques absentes / placas ausentes'. Below these diagrams is a 'Distribution map' of the Caspian Sea region, with a globe inset showing the location. At the bottom, there are two navigation arrows: '5 → 6' and '4 → 5'.

How to use this guide

What do the icons of parts and derivatives represent?

E
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These icons appear after the scientific names in the blue and yellow sections. They indicate there is significant trade for a species in the form of:



Food products



Leather goods



Caviar



Live fish

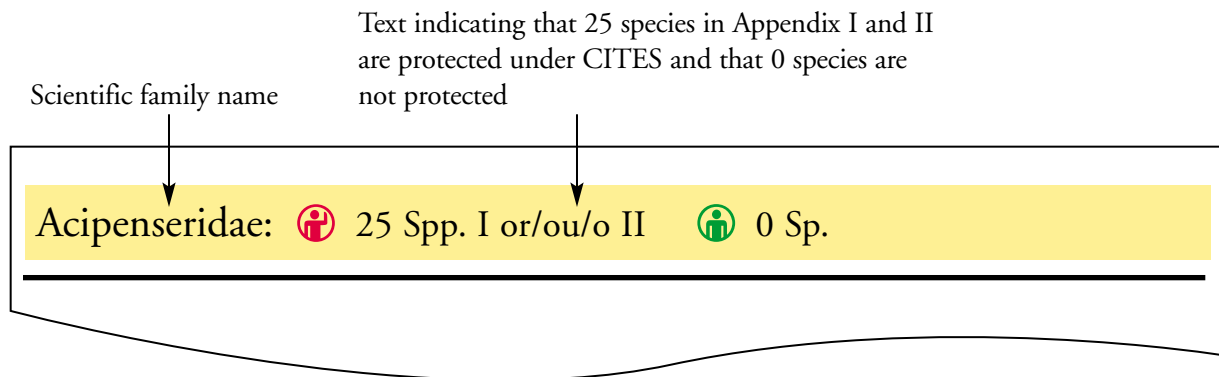
Consult pages  15 to  20 for examples of these parts and derivatives.

How to use this guide

E
?

What does the family presentation bar describe?

For each family described in the blue and yellow sections, the first page provides information about the family as a whole. The scientific family name is highlighted in a coloured presentation bar, followed by the number of species protected under CITES for each Appendix, and also the number of species not protected under CITES.



The number of species regulated by CITES is taken from the CITES Control List that came into effect in 2000. Because modifications may have been made at the CITES biennial conferences, all figures should be considered approximate.

NOTE: the abbreviation Sp. designates a species (singular), Spp. designates several species (plural), Ssp. designates a subspecies (singular), and Sspp. designates several subspecies (plural).

What is the purpose of the orange section?

The orange section contains a table summarizing the key characteristics of each species. It provides detailed measurements that can be helpful in distinguishing between two similar species.

How to use this guide

E
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What is in Index A?

Index A provides the **Scientific and English, French and Spanish corresponding common names** of the species illustrated in the guide. They are presented in alphabetical order of the scientific names. A different typeface is used for each language.

INDEX A/INDEX A/ÍNDICE A

Scientific Names Noms scientifiques Nombres científicos	English Anglais Inglés	French Français Francés	Spanish Español Español	
<i>Acipenser baerii</i>	Siberian sturgeon	Esturgeon sibérien		22
<i>Acipenser brevirostrum</i>	Shortnose sturgeon	Esturgeon à nez court	Esturión hociquicorto	19
<i>Acipenser dabryanus</i>	Yangtze (or Changjiang) sturgeon	Petit esturgeon du Yangtze		38
<i>Acipenser fulvescens</i>	Lake sturgeon	Esturgeon jaune	Esturión lacustre	16
<i>Acipenser gueldenstaedtii</i>	Russian sturgeon	Esturgeon russe	Esturión del Danubio	29

What is in Index B?


Index B provides an alphabetical list of the scientific and common names of the species illustrated in the guide, as well as their status, family and the pages to consult.

Alphabetical list including:

- the names of the species illustrated in the guide (Index A);
- the common names most frequently used in international trade for all species mentioned.

INDEX B/INDEX B/ÍNDICE B

Names Noms Nombres	Scientific Names Noms scientifiques Nombres científicos	Status, family Situation, famille Status, familia	Blue Bleue Azul	Yellow Jaune Amarilla
Akipíssios	<i>Huso huso</i>	.C, AC	2	
Alabama shovelnose sturgeon	<i>Scaphirynchus suttkusi</i>	.C, AC	12	
Alabama sturgeon	<i>Scaphirynchus suttkusi</i>	.C, AC	12	
American Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	.C, AC		12
American paddlefish	<i>Polyodon spathula</i>	.C, PO	16	
Amerikansk stör	<i>Acipenser fulvescens</i>	.C, AC		16
Amu Darya shovelnose sturgeon	<i>Pseudoscaphirhynchus kaufmanni</i>	.C, AC	14	
Amu Darya sturgeon	<i>Pseudoscaphirhynchus kaufmanni</i>	.C, AC	14	
Amudar'inskii lopatonoss	<i>Pseudoscaphirhynchus kaufmanni</i>	.C, AC	14	

C = Species protected under CITES 
(Control List which came into effect in 2000)

AC = Acipenseridae
PO = Polyodontidae

Consult page 14
for an illustration

How to use this guide

E
?

Symbols



Trade regulated by CITES



Food products



Trade not regulated by CITES



Leather goods



Important detail for identification



Caviar



Important detail for identification on underside



Live fish

?

“How to use this guide” section



Unique feature



Key pages



Section of sturgeons most easily identified



Section of sturgeons requiring closer observation



Table summarizing the characteristics of each species.

A

Index A – scientific names and common names of illustrated species

B

Index B – scientific and common names of illustrated species and pages to consult

How to use this guide

Information about sturgeons

General

Interest in this species is focussed almost exclusively on the unfertilized eggs of mature females. After minimal processing, the eggs are transformed into caviar.

In recent years, world sturgeon populations have declined by 70%. This decline is due primarily to pollution, the use of non-selective fish gear, overfishing, and habitat loss and degradation caused by dam construction on rivers. According to the experts, the number of sturgeon caught illegally is equal to or exceeds the number caught legally.

All species of sturgeon (Order: Acipenseriforms) have been listed in the Appendices of CITES since April 1998. Most species are listed in Appendix II and trade in them is legal if they are accompanied by the appropriate CITES export or re-export permit. Trade in protected Appendix I species is prohibited and must be accompanied by a CITES import permit and a CITES export permit.

Biology

Sturgeons are one of the oldest groups of vertebrates. They are often described as “living fossils” because, like sharks, their skeleton is made of cartilage. They have a relatively flat body and do not have scales, but rather rows of scutes, or bony plates, on their back and sides.

Although little is known about the biology of some species of sturgeon, it is estimated that sturgeons can live for over 40 years. They reach sexual maturity at between six and 25 years. The females do not necessarily lay eggs every year, which makes this species vulnerable to overharvesting.

The egg mass can represent over 30 per cent of the total weight of the female. In beluga (*Huso huso*), one of the largest sturgeons, the eggs can weigh over 30 kilograms. For any given species, the eggs extracted from a female will all be a consistent colour, however colour may vary from female to female.

Sturgeons fall into one of two groups. One group spends its entire life in freshwater. The other group is born in freshwater, migrates to saltwater for a few years, and returns to freshwater at sexual maturity to spawn. The latter are called anadromous.

Sturgeons return to the same spawning grounds (site where they lay their eggs) throughout their lives. Fishermen are aware of these sites which makes these fish vulnerable to harvesting.

Geography

Sturgeon populations are found primarily in cold and temperate regions of the Northern hemisphere, i.e., in North America, Europe and Asia.

North America – A few species occur in the rivers on the east and west coasts of Canada and the United States, and in the Mississippi River drainage basin.

Europe – Other species occur in rivers of Europe, particularly rivers that empty into the Atlantic Ocean, the Adriatic Sea and the Baltic Sea. The most heavily traded species of sturgeon is found in the region bordering the Black Sea, the Sea of Azov, the Caspian Sea and the Aral Sea.

How to use this guide

E ? Information about sturgeons

Geography (cont'd)

Asia – Sturgeons occur in watersheds of rivers emptying into the Sea of Okhotsk, the Bering Sea, the Barents Sea, the Kara Sea and the White Sea.

Commercial products

Caviar – Caviar is, without a doubt, the most widely marketed sturgeon product. Once the egg sack is removed from the female, the eggs are collected by passing them over a mesh screen. Depending on the species of sturgeon, the eggs are graded according to colour, size and taste. The eggs are then salted. The designation “Malossol” on the label, which means “little salt”, has become synonymous with a high quality product.

The four most common types of caviar are beluga, osetra, sevruga and kaluga. The colour of the labels of the jars or tins can provide an indication of its quality. Traditionally, blue is reserved for the highest quality caviar, such as beluga, but is also used today for osetra and kaluga. Yellow or orange is used for the second highest quality, osetra, or to designate a mixture of roe from different species of sturgeon. Red is used for the third highest quality of caviar, usually sevruga.

Several species of sturgeon living in the Caspian Sea account for 90% of world caviar production. Countries bordering the Caspian Sea are the world's largest producers. Importing and exporting countries are located primarily in Europe, Asia and North America.

The roe of another species of fish, not protected by CITES, is also available on the market. Lumpfish roe (*Cyclopterus lumpus*) can be red or black, depending on the dye added.

Smoked sturgeon – In recent years, smoked sturgeon, called “Balik”, has become increasingly popular. Eastern European countries are the main producers.

Fresh, frozen and dried sturgeon – These three products come primarily from the aquaculture industry.

Soup – Shark fin and sturgeon head cartilage soup is a product of Southeast Asia. It contains shark and sturgeon cartilage.

Live fish – Trade in live fish is primarily for sturgeon farming. Only a few countries in Europe and North America are involved in this activity.

Glue – Fish glue is made from the swim bladder of sturgeons.

Sea ivory – This new product recently appeared on the North American market at a very small scale. The scutes are sold on the market unprocessed or can be made into “sea ivory” jewelry.