UNEP-WCMC **technical report**

World trade in crocodilian skins 2011-2013

Prepared as part of the International Alligator and Crocodile Trade Study

by John Caldwell

UNEP WCMC

World trade in crocodilian skins 2011-2013

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Executive summary

All crocodilians are listed in either Appendix I or Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and many are found in international trade for the leather and fashion industry, for meat, and as live animals for breeding operations, food, the pet industry and zoos. This report shows the changing trends in the species involved in this trade since 2004 with special emphasis on the years 2011 to 2013, the most recent three-year period for which there are reasonably complete data.

The species involved in the skin trade are the 'classics' such as *Alligator mississippiensis*, *Crocodylus acutus*, *C. moreletii*, *C. niloticus*, *C. novaeguineae*, *C. porosus* and *C. siamensis*, and the caimans such as *Caiman crocodilus crocodilus*, *C. c. fuscus*, *C. latirostris* and *C. yacare*. More recently, Black Caiman *Melanosuchus niger* has entered the skin trade. In global terms, skin exports peaked in 2006 but declined over the next three years as a result of two hurricanes affecting American alligator harvest and the general economic situation. In the years since 2009 the skin trade has increased year on year reaching a peak of almost 1.9 million skins in 2013. The increase was across several species particularly American Alligator from the United States, Nile Crocodile from Southern Africa, Saltwater Crocodile from Australia, Indonesia and Papua New Guinea, Brown Caiman from Colombia and Yacaré from Bolivia, Brazil and Paraguay. In total, over 4.6 million skins of crocodilians were reported in trade over the three-year period 2011-2013.

Live animal trade involves relatively few individuals except for the Far Eastern trade in Siamese Crocodile *Crocodylus siamensis*. These animals are bred in captivity in Cambodia, Thailand and Viet Nam, and exported in large numbers to China where they are consumed as food. In the period 2011-2013, over 61,000 live *C. siamensis* were involved in this trade.

Crocodilian meat is traded widely but is particularly favoured in the Far East, especially China and Hong Kong, Special Administrative Region of China (hereafter referred to as Hong Kong, SAR); the top species in trade in the period 2011-2013 were *C. niloticus* and *C. siamensis*. Trade increased every year between 2003 and 2007, peaking at nearly 1,000 t before falling back to previous levels.

Introduction

This report, the twenty-second produced by UNEP-WCMC for the International Alligator and Crocodile Trade Study (IACTS), examines the international trade in crocodilian skins, with a particular focus on the years 2011 to 2013, but also refers to trends since 2004. It also attempts to identify and highlight problem areas such as apparent discrepancies in reporting and to recommend, where possible, workable solutions. The data used have been obtained from the CITES Trade Database maintained by UNEP-WCMC on behalf of the CITES Secretariat, with additional information provided by the Crocodile Farmers Association of Zimbabwe, the Ethiopian Wildlife Conservation Organisation and the United Nations Food and Agriculture Organisation (FAO).

As in previous IACTS reports, this report presents an overview of global trade levels in classic skins (alligators and true crocodiles) and caimans, and a detailed species-by-species analysis of the trade in skins and also of trade in other products such as live animals and meat. All species within the order Crocodylia are listed in either Appendix I or II of CITES. Of those species specifically mentioned in this report as being in commercial trade, the following are listed in Appendix I: *Crocodylus acutus*, *C. moreletii*, *C. niloticus*, *C. porosus*, *C. rhombifer*, *C. siamensis*, *Osteolaemus tetraspis*, *Caiman latirostris* and *Melanosuchus niger*; although some of these species have populations listed in Appendix II.

Data included

This report is based on an analysis of the annual reports submitted by the Parties to CITES for 2004 to 2013 and, where appropriate, data outside of this time-frame is presented to provide historical context. A list of annual reports for 2011-2013 that were included in the CITES Trade Database at the time of analysis (August 2015) is provided (Table 1). Additional data provided by FAO and the Crocodile Farmers Association of Zimbabwe (CFAZ) has been used where the annual report data are missing or thought to be incomplete.

All direct, commercial trade in whole skins and sides, live animals, meat and teeth of crocodilian species has been analysed, with two sides being considered to be equivalent to one skin; trade in skins reported in other sub-units, such as 'tails', or in units of weight, area or length, have been excluded. Re-export trade has not been included in the estimation of annual production. The figures and tables contain information on trade from all sources, including captive-bred, ranched and wild specimens, unless otherwise specified. Wherever possible, data reported by the producer countries have been used in preference to that reported by importing countries. This is because there may be a time lag between when the export and the import are reported, which could lead to the same skins being counted in different years and thus an overestimation of trade volume. However, where producer countries have failed to submit annual reports, or where exporter-reported trade volumes are substantially less than those reported by importers, importers' data have been used. Many of the transactions have been analysed at the export permit level, and, where possible, importer-reported data have been corrected for year-end trade through permit analysis. The report discusses the key species in trade in taxonomic order, reviewing global trade trends before focussing on trends in trade from individual exporting countries.

Limitations of data

Incomplete data due to late submission of, or failure to submit, CITES annual reports remains an impediment to conducting trade studies using CITES trade data. Measures have been taken by the CITES Standing Committee to improve compliance with the reporting provisions of the Convention. These include reminders being sent by the Secretariat on behalf of the Standing Committee and a recommendation to suspend trade in CITES-listed species should a Party fail, without providing sufficient justification, to submit reports for three consecutive years (Resolution Conf. 11.17 (Rev. CoP16)). Despite these efforts, some Parties fail to submit annual reports on a regular basis.

According to Resolution Conf. 11.17 (Rev. CoP16), annual reports for trade in 2013 should have been submitted by 31 October 2014. However, at the time of analysis (August 2015), several reports that might contain important crocodilian data had not been received by the CITES Secretariat. These include Argentina (2013), Bolivia (2012 and 2013), Cambodia (2013), Egypt (2013), Ethiopia (2012 and 2013), Lao P.D.R. (2013), Malawi (2013), Mauritius (2013), Panama (2012 and 2013) and Zambia (2013).

The accuracy of the data is a further limitation to analysis of the trade. The quality of some annual reports was poor as evidenced by comparisons of exporter- and importer-reported data and data obtained from other sources; occasionally skins have been misreported as live animals, while skin pieces, such as back strips, necks, flanks and tails, have often been reported as whole skins. Since the majority of countries trading in crocodilian skins report on a shipment-by-shipment basis, and many importers' reports include the exporters' permit numbers, importer-reported data can be cross-referenced with the original export permit information in order to reduce reporting or typographical errors to a minimum. This type of checking is also useful for cross-referencing end-of-year trade, where an export may be reported in one year and the import of the same shipment reported the following year.

Analysing annual reports is also complicated by the inconsistent way in which the reports are compiled. According to CITES Notification to the Parties No. 2011/019 of 17 February 2011, Parties may report on the basis of the permits and certificates that have been issued if they are unable to report on the actual number of specimens that entered or left the country. However, reporting on the basis of permits issued may lead to overestimates of trade volume as permits are frequently issued for quantities in excess of those actually traded and indeed, some of the permits may expire without being used. The majority of Parties still do not provide any details concerning the basis on which their annual reports are compiled.

Significant improvement in the reporting of crocodilian trade continues; however, the absence of annual reports from certain key producer countries continues to be a hindrance to timely analysis of the trade.

Table 1. CITES annual reports for 2011-2013 available for analysis as of August 2015

Country	2011	2012	2013
Afghanistan	–	–	–
Albania	✓	✓	–
Algeria	✓	✓	✓
Antigua and Barbuda	✓	✓	✓
Argentina	✓	✓	–
Armenia	✓	✓	–
Aruba	✓	✓	✓
Australia	✓	✓	✓
Austria	✓	✓	✓
Azerbaijan	✓	✓	✓
Bahamas	✓	-	–
Bangladesh	✓	✓	✓
Barbados	✓	✓	✓
Belarus	✓	✓	✓
Belgium	✓	✓	✓
Belize	✓	✓	–
Benin	✓	✓	–
Bhutan	-	–	–
Bolivia	✓	-	–
Bosnia and Herzegovina	✓	✓	✓
Botswana	✓	✓	✓
Brazil	✓	✓	✓
Brunei Darussalam	✓	✓	–
Bulgaria	✓	✓	✓
Burkina Faso	-	–	–
Burundi	✓	-	✓
Cambodia	✓	✓	–
Cameroon	✓	–	–
Canada	✓	–	–
Cape Verde	-	–	–
Central African Republic	-	–	–
Chad	✓	✓	–
Chile	✓	✓	✓
China	✓	✓	✓
Colombia	✓	✓	✓
Comoros	✓	✓	–
Congo	-	–	–
Costa Rica	✓	✓	✓
Côte d'Ivoire	✓	✓	✓
Croatia	✓	✓	✓
Cuba	✓	✓	✓
Cyprus	✓	✓	✓
Czech Republic	✓	✓	✓
Democratic Republic of the Congo	✓	✓	✓
Denmark	✓	✓	✓
Djibouti	✓	✓	–
Dominica	✓	✓	–

Country	2011	2012	2013
Dominican Republic	✓	✓	✓
Ecuador	✓	✓	✓
Egypt	✓	✓	–
El Salvador	✓	✓	–
Equatorial Guinea	✓	✓	–
Eritrea	✓	✓	–
Estonia	✓	✓	✓
Ethiopia	✓	-	–
Fiji	✓	–	–
Finland	✓	✓	✓
France	✓	✓	✓
Gabon	-	✓	✓
Gambia	✓	✓	-
Georgia	✓	✓	✓
Germany	✓	✓	✓
Ghana	✓	✓	–
Greece	✓	✓	✓
Grenada	✓	-	-
Guatemala	✓	✓	✓
Guinea	–	–	-
Guinea Bissau	✓	✓	✓
Guyana	✓	✓	✓
Honduras	✓	✓	-
Hong Kong, SAR	✓	✓	✓
Hungary	✓	✓	-
Iceland	✓	✓	✓
India	-	✓	✓
Indonesia	✓	✓	✓
Iran, Islamic Republic of	✓	✓	✓
Ireland	✓	✓	✓
Israel	✓	✓	✓
Italy	✓	✓	✓
Jamaica	✓	✓	✓
Japan	✓	✓	✓
Jordan	✓	-	-
Kazakhstan	-	-	✓
Kenya	✓	✓	✓
Kuwait	✓	✓	✓
Kyrgyzstan	✓	✓	-
Lao P.D.R.	✓	✓	-
Latvia	✓	✓	✓
Lesotho	–	-	-
Liberia	✓	-	-
Libyan Arab Jamahiriya	–	-	-
Liechtenstein	✓	✓	✓
Lithuania	✓	✓	✓
Luxembourg	✓	✓	-
Macao, SAR	✓	✓	✓

Country	2011	2012	2013
Macedonia, Former Yugoslav Republic of	✓	✓	✓
Madagascar	✓	✓	✓
Malawi	✓	✓	✓
Malaysia	✓	✓	✓
Mali	✓	-	-
Malta	✓	✓	✓
Mauritania	-	-	✓
Mauritius	✓	✓	-
Mexico	✓	✓	✓
Moldova	-	-	-
Monaco	✓	✓	-
Mongolia	-	-	-
Montenegro	✓	✓	✓
Morocco	✓	✓	✓
Mozambique	✓	✓	✓
Myanmar	✓	-	-
Namibia	✓	✓	✓
Nepal	✓	✓	-
Netherlands	✓	✓	✓
New Zealand	✓	✓	✓
Niger	-	-	-
Nigeria	–	✓	-
Norway	✓	✓	✓
Oman	✓	✓	-
Pakistan	✓	✓	✓
Palau	✓	✓	✓
Panama	✓	-	-
Papua New Guinea	✓	✓	✓
Paraguay	✓	✓	-
Peru	✓	✓	✓
Philippines	✓	✓	✓
Poland	✓	✓	✓
Portugal	✓	✓	✓
Qatar	✓	✓	✓
Republic of Korea	✓	✓	-
Romania	✓	✓	✓
Russian Federation	✓	✓	-
Rwanda	✓	-	-
Saint Kitts and Nevis	✓	-	✓
Saint Lucia	✓	✓	-
Saint Vincent and the Grenadines	✓	✓	✓
Samoa	–	-	-
San Marino	-	-	-
Sao Tome and Principe	-	-	-
Saudi Arabia	✓	✓	✓
Senegal	-	✓	✓
Serbia	✓	✓	✓
Seychelles	✓	-	-
Sierra Leone	✓	-	-
Singapore	✓	✓	✓

Country	2011	2012	2013
Slovakia	✓	✓	✓
Slovenia	✓	✓	✓
Solomon Islands	-	-	-
Somalia	–	-	-
South Africa	✓	✓	✓
Spain	✓	✓	✓
Sri Lanka	✓	✓	-
Sudan	-	-	-
Suriname	✓	✓	✓
Swaziland	✓	✓	✓
Sweden	✓	✓	✓
Switzerland	✓	✓	✓
Syria	✓	✓	-
Thailand	✓	✓	✓
Togo	✓	✓	-
Trinidad and Tobago	✓	✓	✓
Tunisia	✓	-	✓
Turkey	✓	✓	✓
Uganda	✓	✓	-
Ukraine	✓	✓	-
United Arab Emirates	✓	✓	✓
United Kingdom	✓	✓	✓
United Republic of Tanzania	✓	✓	✓
United States of America	✓	✓	✓
Uruguay	✓	✓	✓
Uzbekistan	✓	✓	✓
Vanuatu	✓	-	-
Venezuela, Bolivarian Republic of	✓	✓	✓
Viet Nam	✓	✓	✓
Yemen	–	-	-
Zambia	✓	✓	-
Zimbabwe	✓	✓	✓

Key: ✓= report available; - = report not received

Overview of global trade in crocodilian skins

The overall volume of world trade in classic crocodilian and caiman skins has been variable over the ten-year period 2004 to 2013, with an average of 1.4 million skins[1] exported annually (Table 2; Figure 1). Apart from a peak in 2006 and a trough in 2009, overall global trade appeared to have been remarkably stable over the decade. However the total number of skins entering international trade in 2013 was approximately 1.9 million, an increase of 33 per cent over the previous year. Trade in skins of *Alligator mississippiensis* from the United States of America (hereafter referred to as the United States) increased by nearly 50 per cent over the figure for 2012 and *Crocodylus niloticus* skins from southern Africa increased by 26 per cent. Exports of *Caiman crocodilus fuscus* from Colombia increased by 37 per cent compared to the previous year while *Caiman yacare* exports from Bolivia, Brazil and Paraguay showed an increase of 30 per cent. However, caiman exports from the Bolivarian Republic of Venezuela (hereafter referred to as Venezuela) fell slightly from the previous year.

Some diversification of the species in trade began in the early 2000s with two different species entering the market: captive-bred *Crocodylus acutus* from Colombia and Honduras and *Caiman latirostris* from Argentina and Brazil. Trade in these species continues, but in relatively small quantities. The first exports in recent years of wild *Caiman crocodilus crocodilus* skins from Guyana began in 2001 and continued through 2013, while 2005 saw the first exports of ranched *Caiman yacare* from Argentina.

Crocodylus novaeguineae production showed a steady increase between 2011 and 2013 while the steady increase in trade in *C. porosus* seen up to 2012 showed a slight decrease. Trade in *C. siamensis* increased steadily over the early part of the decade and peaked at over 60,000 skins in 2008; trade appeared to have stabilised at about 35,000 skins annually between 2009 and 2012 and increased to 45,000 in 2013, with most of the skins being produced in Thailand and a smaller proportion in Viet Nam.

The following sections provide a more detailed review of each species and the primary exporter countries involved in the skin trade.

Table 2. Direct, commercial global exports of crocodilian skins from the main taxa, 2004-2013

Taxon	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Alligator mississippiensis	368,409	353,903	422,931	262,127	230,464	297,187	369,731	312,542	326,538	481,341
Crocodylus acutus	227	204	120	404	1,371	1,460	200	1,392	1,618	1,905
Crocodylus johnstoni	0	65	0	0	0	0	0	0	0	0
Crocodylus moreletii	549	855	158	11	724	485	0	184	679	1,300
Crocodylus niloticus	140,497	140,887	156,221	148,342	161,698	149,084	167,825	212,796	204,288	258,059
Crocodylus novaeguineae	39,796	32,002	38,645	28,663	25,638	26,212	24,480	16,632	23,461	25,928

[1] Individual 'Species Accounts' provide details of the source of the data on which the figures for each species and country are based.

Taxon	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Crocodylus porosus	30,638	37,441	34,152	45,249	52,808	46,089	58,157	63,380	73,323	64,706
Crocodylus siamensis	20,930	31,717	47,972	54,331	63,471	34,373	33,094	38,170	35,450	45,093
Subtotal of 'classic' skins	**601,046**	**597,074**	**700,199**	**539,127**	**536,174**	**554,890**	**653,487**	**645,096**	**665,357**	**878,332**
Caiman crocodilus crocodilus	70,722	65,078	69,574	44,894	36,989	43,638	24,643	44,257	47,130	45,485
Caiman crocodilus fuscus	621,691	603,223	972,041	670,958	533,549	406,381	651,121	634,761	625,128	856,603
Caiman latirostris	215	2,752	1,669	1,125	809	394	1,933	2,973	4,594	5,960
Caiman yacare	41,883	53,241	50,499	65,452	51,273	48,843	29,684	58,351	81,474	102,203
Melanosuchus niger	0	0	0	0	11	6	0	11	275	51
Subtotal of caiman skins	**734,511**	**724,294**	**1,093,783**	**782,429**	**622,631**	**499,262**	**707,381**	**740,353**	**758,601**	**1,010,302**
Grand total	**1,335,557**	**1,321,368**	**1,793,982**	**1,321,556**	**1,158,805**	**1,054,152**	**1,360,868**	**1,385,449**	**1,423,958**	**1,888,634**

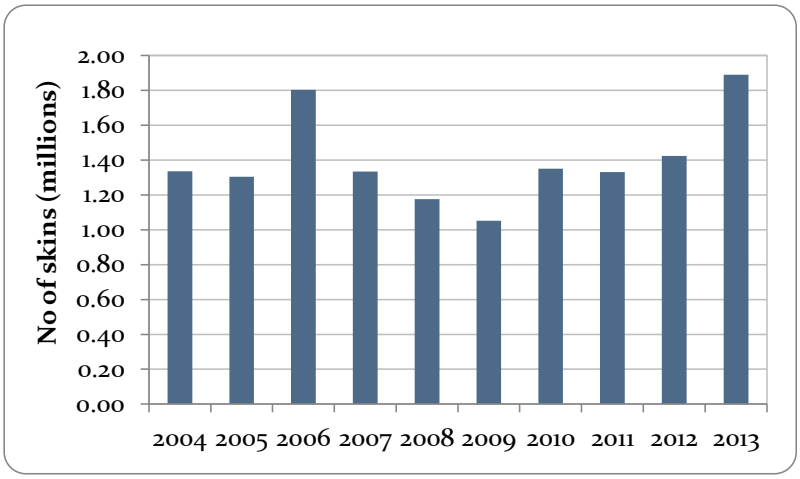


Figure 1. Direct, commercial global exports of crocodilian skins, 2004-2013

Species accounts

Crocodylus acutus American Crocodile

Colombia has seven farms registered with CITES for production of this Appendix I species. Skin exports began in 2001 with 100 skins from captive-bred animals going to France. Exports of small numbers of skins have continued, rising to 1,905 captive-bred skins in 2013. Almost all of the skins exported by Colombia between 2007 and 2009 were imported by Italy, whilst subsequently skins have also been exported to France, Germany, the Republic of Korea and Singapore, amongst other countries.

Honduras has one registered breeding operation for this species and the first reported trade was of 500 skins imported by Japan in 2003. Permits for the export of 1,004 skins were issued in 2008, but these, and a further 86 skins (totalling 1,090 skins) were exported in 2009. In 2012 Honduras reported exporting 350

skins to El Salvador. Honduras has not yet submitted an annual report for 2013 and neither has Panama, the principal importer over the previous decade.

Crocodylus johnstoni Australian Freshwater Crocodile

No trade in skins of this species has been reported since 2005. Exports from **Australia**, the only range State, peaked at 3,875 skins in 1993, remained at this level until 1996, and subsequently fell to negligible levels.

Crocodylus moreletii Morelet's Crocodile

Found only in Belize, Guatemala and Mexico, this species was listed in CITES Appendix I until 23 June 2010 when the populations of Belize and Mexico were transferred to Appendix II with a zero quota for wild specimens traded for commercial purposes. Previously Mexico had three captive-breeding operations for this species registered with the CITES Secretariat. Exports of skins from Mexico peaked at 2,430 in 2001 and subsequently decreased, remaining below 1,000 skins per annum from 2003 until 2011, then increased to 1,314 in 2012 and 1,300 in 2013 (Figure 2). The main importer in 2013 was France, with smaller quantities of skins exported to Germany, Italy and Japan.

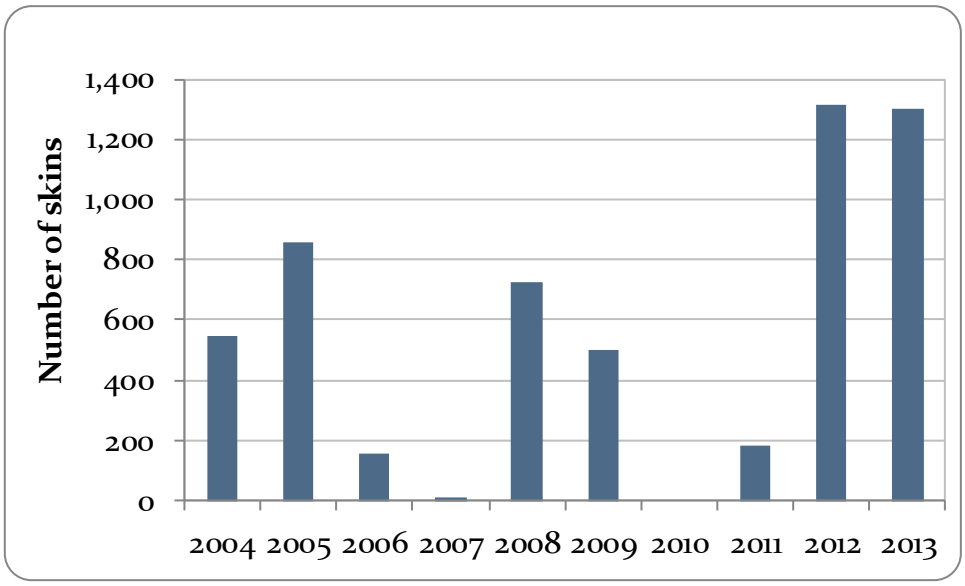


Figure 2. Direct, commercial exports of *Crocodylus moreletii* skins reported by Mexico, 2004–2013

Crocodylus niloticus Nile Crocodile

Over the period 2004-2013, an average of 174,000 *Crocodylus niloticus* skins were exported globally per year, with an increasing trend over the period 2010-2013 (Table 3). The section that follows summarises information on exports by range States and other countries with farms capable of commercial skin production. Currently, only two countries have captive-breeding operations registered with the CITES Secretariat: Mali and Senegal, each with one registered operation. *Crocodylus niloticus* is listed in CITES Appendix I except for the populations of Botswana, Egypt, Ethiopia, Kenya, Madagascar, Malawi, Mozambique, Namibia, South Africa, Uganda, the United Republic of Tanzania (hereafter referred to as Tanzania), Zambia and Zimbabwe, which are included in Appendix II.

Table 3. Direct, commercial exports of *Crocodylus niloticus* skins from producer countries, 2004-2013

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Botswana	0	0	0	*320	*374	*1,626	*1,500	1,800	1,000	4,000
Brazil	44	0	0	0	0	0	0	0	0	0
Ethiopia	■300	■347	■727	*594	■492	0	4	*77	*400	0
Israel	0	0	0	0	*1	*2	0	0	*18	0
Kenya	2,850	10,950	8,710	6,354	4,504	4,283	4,309	4,180	6,903	6,332
Madagascar	4,760	4,850	6,660	5,500	2,640	2,450	0	0	0	0
Malawi	*100	*1,038	698	*1,350	3,370	2,603	399	1,508	6,063	5,373
Mali	0	0	0	0	107	0	0	15	0	0
Mauritius	400	150	83	180	189	100	0	338	150	0
Mozambique	0	1,156	2,021	179	566	0	2,449	18,788	7234	21,977
Namibia	0	400	305	0	0	600	2	200	800	1,103
Senegal	0	0	2	0	1	0	0	0	0	0
South Africa	35,760	25,274	23,542	30,514	37,627	25,050	53,329	57,298	77,473	*58,055
Sudan					2		20			
Tanzania	*1,067	*1,584	*1,100	*1,556	*1,784	1,365	601	*475	0	*352
Uganda	600	*600	*300	0	*290	0	500	0	405	0
Zambia	26,353	*31,392	*40,457	37,305	28,197	43,655	23,717	37,584	15,331	*45,368
Zimbabwe	60,185	70,416	80,873	54,810	59,509	939	29,297	22,557	80,348	91,104
	♦68,263	♦63,146	♦71,616	♦64,490	♦81,554	♦67,350	♦80,995	♦90,533	♦88,421	♦115,499
Total	**140,497**	**140,887**	**156,221**	**148,342**	**161,698**	**149,084**	**167,825**	**212,796**	**204,288**	**258,059**

Key: * Figure derived from importer-reported data; ■ Data supplied from EWCO (the Ethiopian Wildlife Conservation Organisation, the CITES Management Authority of Ethiopia.)[2]; ♦ Data supplied by CFAZ (the Crocodile Farmers Association of Zimbabwe)[3]: these data have been used for the totals.

Exports by range States

Botswana: No commercial exports of skins were reported by Botswana between 1998 and 2010, however, South Africa reported importing skins from captive-bred individuals in 2008, 2009 and 2010, as well as 320 ranched skins in 2007. Botswana reported exporting 1,800 skins in 2011, 1,000 in 2012, all captive-bred and a further 4,000 ranched skins in 2013. All were destined for South Africa which appears to be the only country importing skins for commercial purposes from Botswana.

Central African Republic: No commercial exports of skins from the Central African Republic have been reported since 1986.

Congo: No commercial exports of skins from the Congo have been reported since 1989.

Ethiopia: Ethiopia's sole crocodile ranching operation (Arba Minch Crocodile Ranch) is owned and managed by the Ethiopian Wildlife Conservation Organisation (EWCO) which also acts as both the CITES Management and Scientific Authorities. The ranch, however, is not currently registered with the CITES Secretariat. Production appears to be variable and there are discrepancies between the information contained in Ethiopia's annual reports to CITES, data received directly from EWCO, and information from importing countries. Data provided by EWCO have been used in Table 3 for the period 2004 to 2006 and for 2008 in preference to Ethiopian annual report data as they are more comparable with data reported by importers; however, no EWCO data were available for 2007 and the Ethiopian annual report for that year was incomplete so importer-reported data were used. No annual report has been received from Ethiopia for 2009 and no imports of skins from Ethiopia were reported in that year. Ethiopia's annual report for 2010 recorded the export of four ranched skins but none were reported in 2011. The import of 77 ranched skins was reported by Japan in 2011 and 400 ranched skins by the Republic of Korea in 2012; Ethiopia's annual

[2] Kumara on behalf of Arbaminch Crocodile Ranch, *pers. comm.* 20-10-2009.
[3] Sue Childes on behalf of CFAZ, *pers. comm.* numerous dates.

reports for 2012 and 2013 have not yet been received and neither has the 2013 report from the Republic of Korea. No imports of skins have so far been reported by other countries for 2013.

Guinea: No trade in skins from Guinea has been reported since 1995.

Kenya: Kenya reported exporting 4,180 skins in 2011, 6,686 in 2012 and a further 6,332 skins were exported in 2013 with the main importers being Italy, the Republic of Korea, Singapore, South Africa and Taiwan, Province of China. All skins were reported to be from ranching operations, with the exception of 717 skins reportedly of captive-bred origin exported in 2012 and 750 exported in 2013.

Liberia: Commercial exports of skins from Liberia have not been reported since 1984.

Madagascar: The situation in Madagascar has long been under review by both the IUCN/SSC Crocodile Specialist Group and the CITES Secretariat. Based on serious concerns raised about the trade, the CITES Standing Committee recommended Parties to suspend trade in *C. niloticus* from Madagascar on 17 June 2010 until further notice (See Notification to the Parties No. 2010/015 and SC63 Doc. 13). This suspension was not lifted until the end of 2014 (See Notification to the Parties No. 2014/064) and no trade in skins of this species from Madagascar has been reported during the period under study.

Malawi: Malawi reported exporting 1,508 skins in 2011, 6,063 in 2012 and a further 5,373 in 2013. All, apart from two wild skins reportedly exported to Australia in 2013, were from ranching operations.

Mali: Mali has one captive-breeding operation registered with the CITES Secretariat (Ets Lassana Diaby Cuirs et Peaux) that was reportedly established in 1978, but was only registered with CITES in May 2008. Mali reported exports of 107 source 'D' skins to France in 2008 and 15 source 'D' skins to the United States in 2011; Mali has not submitted an annual report for 2012 or 2013 but no countries have reported any imports from the country in these years.

Mozambique: Mozambique reported exporting a total of 18,788 skins in 2011, 7,234 in 2012 and 21,977 in 2013. Of these, 1,694 were apparently wild-caught skins exported to Singapore and South Africa, with the remainder of ranched origin destined for France, Japan, Portugal, the Republic of Korea and Singapore.

Namibia: Namibia reported exporting 200 ranched skins to South Africa in 2011, and a further 800 ranched skins to South Africa and one captive-bred skin to the Netherlands in 2012. In 2013 all exports were reported to be of captive-bred origin, a total of 1,103 exported to Israel, Italy and the Republic of Korea.

Nigeria: No commercial shipments of skins from Nigeria have been reported since 1983.

Senegal: There is one farm registered with the CITES Secretariat for captive-breeding of this species that was established in 1995. The only reported commercial trade appears to have been two captive-bred skins exported to Ukraine in 2006 and one exported to France in 2008.

Somalia: No commercial shipments of skins have been reported from Somalia since 1981. A CITES trade suspension has been in place for all trade from Somalia since 2002 on the basis of lack of submission of annual reports. National legislation suspending all commercial trade was also put in place in 2004.

South Africa: South Africa's annual reports for 2011 and 2012 indicate the commercial export of 57,298 and 77,473 skins respectively. Although there are no known commercial ranching operations in South Africa, 5,113 of the skins exported were reportedly ranched. It is known that South Africa imports hatchling crocodiles from Mozambique therefore it seems likely that the ranched skins originated from Mozambique

and were misreported as direct exports. In the case of 2013, data in Table 3 are as reported by importing countries.

Sudan: No commercial trade in skins originating in Sudan was reported between 1992 and 2009; in 2010, Sudan reported exporting six skins to Turkey and 14 skins to the United Arab Emirates for commercial purposes. No source for the skins was reported and no further commercial trade has been reported subsequently. Sudan has no captive breeding operations registered with the CITES Secretariat.

Tanzania: In 2011 Tanzania reported no commercial exports of skins but Singapore reported the import of 475 wild-sourced skins from the country; no trade was reported in 2012 and Singapore reported the import of a further 352 wild-sourced skins in 2013.

Togo: No trade in skins has been reported since the early 1980s.

Uganda: No trade in skins was reported in 2011 but Uganda reported exporting 400 ranched skins to Israel and five captive-bred skins to South Africa in 2012. The Uganda annual report for 2013 has not been received but no imports of skins from that country have been reported by trading partners.

Zambia: Zambia reported exports of 37,584 and 15,331 skins in 2011 and 2012, respectively, of which the vast majority were ranched and exported to Singapore. Although no report from Zambia has been received for 2013, France, Japan and Singapore reported importing 45,368 skins from ranching operations.

Zimbabwe: Exports of skins of this species reported by Zimbabwe in its annual reports are in most years substantially lower than those reported by importers and also the figures supplied by the Crocodile Farmers Association of Zimbabwe (CFAZ); the CFAZ figures have therefore been used in this analysis as a precautionary measure (see Table 3). In 2011, Zimbabwe's annual report recorded the export of 22,557 skins whereas importers reported over 140,000 skins and CFAZ data indicate exports of 80,995 skins. In 2012 the Zimbabwe report indicated a higher figure than CFAZ, but cross matching of the two reports indicated that several shipments of backstrips had been erroneously reported as whole skins in the annual report. In 2013 CFAZ reported exports of over 115,000 skins as opposed to the figure of only 91,000 in the CITES annual report. However it should be noted that not all skins exported from Zimbabwe are produced by CFAZ members and therefore it is likely that neither set of figures accurately represents a complete record of Zimbabwe's skin exports; importers again reported over 100,000 skins from Zimbabwe in 2013.

Exports from non-range States with commercial crocodile farms

Brazil: No exports of *C. niloticus* skins have been recorded from Brazil since 2004.

Israel: Israel reported the export of 100 skins 2012, mostly captive bred. Some 41 skins were reported to be from ranching operations and it is possible that these were in fact re-exports.

Mauritius: Mauritius reported the direct export of 338 skins in 2011 and 150 skins in 2012, all of which were captive-bred and the majority destined for Zimbabwe. The annual report for 2013 has not been received from Mauritius but no imports from there have been reported by trading partners in 2013.

Crocodylus novaeguineae New Guinea Crocodile

Over the ten-year period 2004 to 2013, the total number of skins of this species exported by the main producers, Indonesia and Papua New Guinea, was greatest between 2004 and 2006, subsequently decreased until 2011 but increased again in 2012 and 2013 (Table 4).

Table 4. Direct, commercial exports of *Crocodylus novaeguineae* skins from producer countries, 2004-2013

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Indonesia	10,481	13,585	16,575	12,759	10,588	7,255	7,450	8,846	11,097	*10,051
Papua New Guinea	29,315	18,417	22,070	15,904	15,050	18,957	17,030	7,786	12,364	15,877
Total	**39,796**	**32,002**	**38,645**	**28,663**	**25,638**	**26,212**	**24,480**	**16,632**	**23,461**	**25,928**

Key: * Figure derived from importer-reported data

Indonesia: Exports decreased steadily from 2006 to 2010, though increased slightly in both 2011 and 2012, while the proportion of wild-sourced skins increased from approximately 70 per cent in 2008 to 94 per cent in 2012. Indonesia's annual report for 2013 did not report any trade in this species and data from importers, all of wild-sourced skins, have been used in Table 4. The main importers of *C. novaeguineae* skins 2011-2013 were Japan and Singapore.

Papua New Guinea: Exports over the decade were highest in 2004 and have fluctuated since then, reaching a low of 7,786 in 2011. Between 2011 and 2012, all of the skins were exported to Japan and Singapore, however Hong Kong, SAR imported a small number in 2013. All skins exported by Papua New Guinea since 2004 have been wild-sourced.

Crocodylus porosus Saltwater Crocodile

Crocodylus porosus is listed in CITES Appendix I, except for populations of Australia, Indonesia and Papua New Guinea which are listed in Appendix II. Despite slight decreases in 2006, 2009 and 2013 the total number of *C. porosus* skins exported increased between 2004 and 2012, rising to a peak of 73,263 skins in 2012. Exports of *C. porosus* skins from range States between 2004 and 2013 are presented in Table 5.

Table 5. Direct, commercial exports of *Crocodylus porosus* skins from range States, 2004-2013

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Australia	*12,741	*20,409	*16,123	*21,314	*29,353	*27,091	*34,561	*42,068	*43,730	*31,749
Brunei Darussalam	0	0	0	0	0	0	0	0	5	0
Indonesia	3,968	4,714	3,825	5,151	5,718	5,967	4,302	7,934	6,763	*3,662
Malaysia	*1,450	*1,058	*1,684	*1,273	*1,043	*1,010	*1,303	*436	*1,807	*1,853
Papua New Guinea	11,043	10,222	10,208	12,675	12,237	9,900	15,787	9,432	12,753	8,099
Philippines	0	0	0	34	*20	892	500	200	3,274	3,275
Singapore	1,136	538	1,712	1,653	1,877	0	0	0	0	11,275
Thailand	300	500	600	3,149	2,560	1,229	1,704	3,310	4,931	*4,793
Total	**30,638**	**37,441**	**34,152**	**45,249**	**52,808**	**46,089**	**58,157**	**63,380**	**73,263**	**64,706**

Key: * Figure derived from importer-reported data

Australia: Comparison of data reported by Australia with that reported by importing countries in certain years suggests that Australia may not have reported the full quantities of skins exported. Given these discrepancies, the data provided in Table 5 have been taken from reports of the importing countries. The destinations of the skins exported 2011-2013 were mainly France and Singapore and the vast majority were reported by the importers as from either captive-bred or ranched individuals.

Brunei Darussalam: This country reported exporting five skins from captive-bred animals to the Republic of Korea in 2012; no other trade in skins from the country has been reported. There are no breeding operations in the country registered with the CITES Secretariat.

Indonesia: Indonesia's exports have shown a relatively steady increase over the last decade, peaking at over 7,900 skins in 2011. The main importers 2011-2013 were Japan and Singapore. From 2006 onwards, all skins were from either captive-bred or ranched animals, with the proportion from captive-bred sources increasing from less than 20 per cent in 2005 to 75 per cent in 2012. Indonesia's annual report for 2013 did not include data on this species but data from importers suggest that the proportion of captive-bred skins increased again that year.

Malaysia: Data from Malaysia come from at least two separate Management Authorities and appear to be poorly correlated with data reported by importing countries. The figures provided in Table 5 are therefore based on importer-reported data. On the basis of these data, exports appear to have peaked at 1,853 skins in 2013. There are currently seven CITES-registered captive-breeding operations for this species in Malaysia.

Papua New Guinea: Papua New Guinea's exports peaked at 15,787 skins in 2010, of which 32 per cent were from wild caught animals. The increase in exports seen in 2008 was apparently the result of a reduction in breeding stock on the farms[4]. Although exports in 2011 decreased to 9,432 skins, numbers increased to 12,753 in 2012 but decreased again in 2013. The proportion of captive-source skins rose from 72 per cent in 2011 to 78 per cent in 2012, but was only 60 percent in 2013.

Philippines: There are two farms registered with the CITES Secretariat to produce this species and small numbers of skins have been exported annually since 2007. In 2012 and 2013 just over 3,000 skins, all of which were recorded as source 'D', were exported Singapore.

Singapore: All of Singapore's reported commercial exports of skins 2004-20013 were captive-bred; there is now only one registered captive-breeding operation in the country. Most of the skins were exported to France, Italy and Japan. No exports were reported between 2008 and 2012(Table 5), however exports in 2013 amounted to some 11,275.

Thailand: Thailand's reported exports of skins showed a notable increase between 2004 and 2007; exports subsequently decreased slightly but returned to similar levels in 2011 and increased further to just under 5,000 skins in 2012 and 2013(Table 5). All exports were from animals bred in captivity; there are 14 CITES-registered captive-breeding operations for this species in Thailand. The principal importer 2011-2013 was France.

Crocodylus siamensis Siamese Crocodile

Cambodia: Cambodia has not reported any exports of skins since 2008, when 1,300 captive-bred skins were reportedly exported to Thailand. However, Thailand reported the import of 3,700 skins in 2008 and 300 skins in 2009 from Cambodia, all captive-bred. Cambodia has six crocodile farms registered with the CITES Secretariat for the commercial production of this species.

Thailand: There are 23 crocodile farms registered with the CITES Secretariat for commercial production of this species in Thailand; all reported exports of skins were captive-bred. Reported exports were fewer than 6,000 skins annually prior to 2003, but then increased steadily to 39,109 skins in 2008. Exports decreased in 2009 but subsequently increased to about 30,000 skins per year between 2010 and 2013 (Table 6). The main importers in the period 2011-2013 were Japan and Singapore. A permit analysis revealed a number of cases in 2013 where Thailand reported exports of skin pieces, which were reported as skins by a number of

[4] Eric Langelet (IUCN Crocodile Specialist Group), *pers. comm.* 12-09-2010.

importing countries. Therefore, importer reported data has been used for Thailand for 2013, to take a precautionary approach.

Viet Nam: Since the first reported exports of *C. siamensis* from the country in 2004, exports steadily increased, peaking at 23,062 skins in 2008; however, exports decreased in both 2009 and 2010 and, although there was a slight increase in 2011, remained at under 10,000 skins in 2011, 2012 and 2013 (Table 3). Japan, Thailand, China and Singapore were the main destinations of the skins between 2011 and 2013. All skins exported were reported as captive-bred; Viet Nam has nine captive-breeding operations registered with the CITES Secretariat for this species.

Table 6. Direct, commercial exports of *Crocodylus siamensis* skins from range States, 2004-2013

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Cambodia	0	200	0	100	1,300	300*	0	0	0	0
Thailand	20,105	28,141	31,847	37,041	39,109	24,890	29,809	31,568	29,170	*35,774
Viet Nam	825	3,376	16,125	17,190	23,062	9,483	3,285	6,602	6,280	9,319
Total	**20,930**	**31,717**	**47,972**	**54,331**	**63,471**	**34,373**	**33,094**	**38,170**	**35,450**	**45,093**

Key: * Figure derived from importer-reported data

Alligator mississippiensis American Alligator

Reported exports of *A. mississippiensis* from the United States increased from around 31,000 skins in 1986 to 422,931 skins in 2006. However, exports declined by 38 per cent in 2007, and fell further in 2008 (Table 7; Figure 3). The source of this change is unclear, but it may have been the result of a combination of factors including oversupply of both caiman and alligator skins in 2006, the effect of two hurricanes on alligator habitat, and the general global financial downturn which may have reduced the demand for luxury leather goods. Exports rose again by almost 30 per cent in 2009, stabilised at between 310,000 and 330,000 between 2011 and 2012 then rose to a new peak of over 480,000 skins in 2013. Between 2011 and 2013, four countries, France, Germany, Italy and Singapore, together imported 90 per cent of production.

Table 7. Direct, commercial exports of *Alligator mississippiensis* skins reported by the United States, 2004-2013

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
368,409	353,903	422,931	262,127	230,464	297,187	369,731	312,542	326,538	481,304

In the CITES annual reports of the United States prior 2005, the source code 'C' (bred in captivity) was likely to have been used for ranched animals as well as the source code 'R'. However, from 2005 onwards, source code 'W' (wild taken) appears to have been used for ranched animals; over 99 per cent of the skins exported in these years were reported as source 'W'. This is the result of the decision by the United States CITES Management Authority that the code 'R' should only be used in the case of crocodilian populations transferred from CITES Appendix I to Appendix II subject to ranching. Up to 2007, the United States also reported the export of relatively small quantities of source 'F' skins – from animals born in captivity (F1 or subsequent generations that do not fulfil the definition of 'bred in captivity' in Resolution Conf. 10.16 (Rev. CoP15)), while in 2012 and 2013 34,127 of the skins exported were reported as source 'I' (seizures/confiscations).

According to data received from FAO the species is bred in captivity in Taiwan, Province of China, and small quantities of skins have been exported every year since 2005[5]. This species is also bred in captivity in Israel, but there have been no reported exports of skins from Israel since 2001.

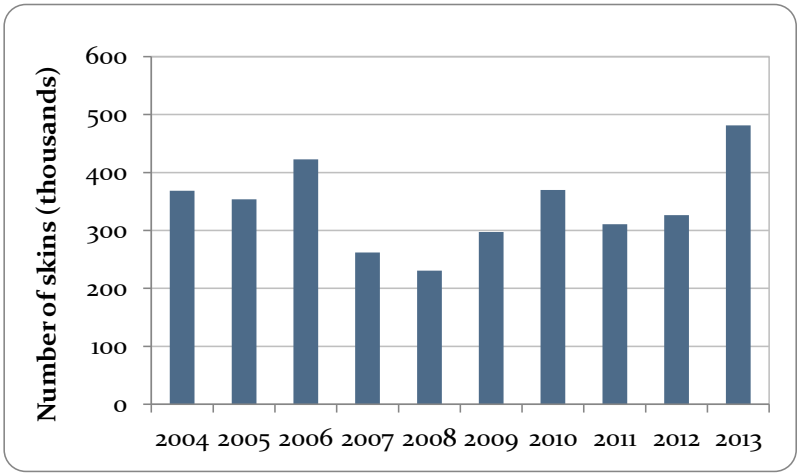


Figure 3. Direct, commercial exports of *Alligator mississippiensis* skins reported by the United States, 2004-2013

Caiman crocodilus crocodilus Spectacled Caiman

Colombia reported exports of between 3,000 and 6,200 captive-bred skins every year between 2004 and 2008 to Singapore and Thailand; no exports were reported by Colombia between 2009 and 2011 but 3,000 skins were reported as exports to Thailand in 2012 and a further 663 in 2013.

Guyana was a major supplier of this subspecies in the late 1980s, with over 320,000 skins reported by importing countries between 1983 and 1989, but exports dwindled during the 1990s and early 2000s. However, trade has increased in recent years; Guyana reported the export of 16,460 skins in 2011, 18,000 in 2012 but only 1,500 in 2013, all wild-sourced, with the majority destined for Mexico. Mexican annual report data suggest the real figure may be rather more - 28,980 in 2013, and these data have been used in Table 2.

Venezuela has historically been the main supplier of skins of this subspecies, almost all from wild-collected animals. Between 2004 and 2006, Venezuela exported around 60,000 skins annually; however, exports declined to less than half that level in 2007 and decreased each year since until 2010 (Figure 4). Subsequently, exports reported by Venezuela in 2011 and 2012 show an increase to between 25,000 and 30,000 skins. The Venezuela annual report for 2013 indicates exports of 10,740 skins to Germany and Italy while importers' data suggest that exports were around 15,800 skins.

[5] Luca Garibaldi on behalf of FAO, *pers. comm.* various dates

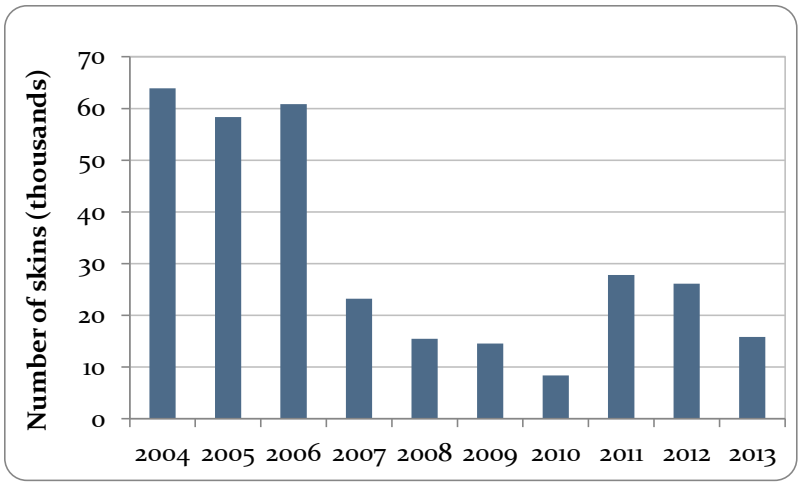


Figure 4. Direct, commercial exports of *Caiman crocodilus crocodilus* skins reported by Venezuela, 2004-2013

Caiman crocodilus fuscus Brown Caiman

Reported exports of *Caiman crocodilus fuscus* skins from the two principal exporting countries between 2003 and 2012 are provided in Table 7.

Table 8. Direct, commercial exports of *Caiman crocodilus fuscus* skins from Colombia and Panama, 2004-2013

Exporter	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Colombia	605,841	599,527	969,731	668,076	532,394	405,386	647,565	634,461	625,128	855,791
Panama	15,850	*3,696	*2,310	2,882	1,155	*995	3,556	300	*0	*812
Total	**621,691**	**603,223**	**972,041**	**670,958**	**533,549**	**406,381**	**651,121**	**634,761**	**625,128**	**856,603**

Key: * Figure derived from importer-reported data.

Colombia remains the major exporter of this subspecies. Exports decreased steadily from the 969,731 skins reported in 2006 to 405,386 skins in 2009, the smallest quantity exported since 1992; however exports increased to nearly 650,000 in 2010 and remained at over 600,000 in both 2011 and 2012 (Table 8). In 2013 the figure increased to over 850,000 skins. Mexico, the Republic of Korea, Singapore, Thailand, and the United States were the primary importers.

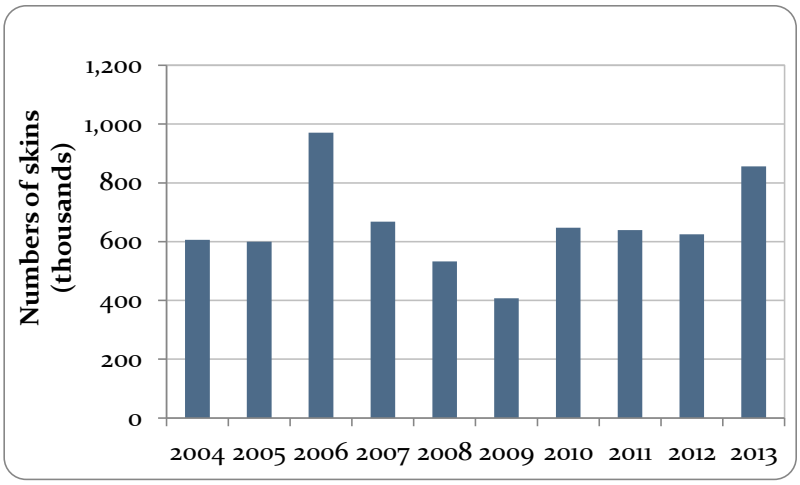


Figure 5. Direct, commercial exports of *Caiman crocodilus fuscus* skins reported by Colombia, 2004-2013

Other range States: No exports have been reported by Honduras since 1998; Nicaragua reported the export of one wild-sourced skin to Italy in 2006, while the United States reported the import of 134 wild-sourced skins from Nicaragua in 2008. Panama, although an important entrepôt State, clearly distinguishes between exports and re-exports in its annual reports. The first significant direct export of 10,250 skins was reported in 2000 and trade appears to have peaked in 2003 at 19,840 skins. Export quantities reported by Panama in its annual reports for 2005 and 2006 are lower than those reported by importing countries, and the 2009 annual report has not been submitted, so the quantities for those years in Table 8 are those reported by the importing countries (notably Italy, Mexico, Singapore, Spain and the United States). Trade reported by Panama in 2010 and 2011 was also less than reported by importing countries, but analysis on the basis of permit numbers indicate that many small skin pieces have been reported by importers as whole skins. No report has been received from Panama for either 2012 or 2013; importers' data show no imports in 2012 and Spain reported importing 812 skins in 2013.

Caiman latirostris Broad-snouted Caiman

The Argentine population of this species was transferred from CITES Appendix I to Appendix II in 1997, and the first exports of skins from ranched animals were reported by Argentina in 2001. Exports increased subsequently to 2,752 skins in 2005. Exports then decreased every year to 394 skins in 2009, but increased to 1,933 skins in 2010, 2,973 in 2011 and further to 5,755 in 2012. No report for 2013 has been received from Argentina at the time of analysis but importers' data suggest a further increase to 5,960. All skins were reportedly from ranched animals; the principal importers were Italy and Spain.

Caiman yacare[6] Yacaré

Exports of *C. yacare* skins from the principal exporter of this species, Bolivia, appear to have decreased notably in 2009 and again in 2010, but apparently increased again each year between 2011 and 2013 the latter figure according to importer-reported data (Table 9).

[6] According to CITES Standard nomenclature, which the CITES Trade Database follows, *Caiman yacare* is a synonym of the sub species *Caiman crocodilus yacare*, and as such trade reported as *Caiman crocodilus* may include trade in the subspecies.

Table 9. Direct, commercial exports of *Caiman yacare* skins from producer countries, 2004-2013

Exporter	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Argentina	1	1,291	2,883	6,083	3,851	10,194	4,391	3,159	258	0
Bolivia	34,878	51,330	44,443	49,115	41,594	29,535	24,192	48,616	*59,087	*61,500
Brazil	7,004	*620	*3,173	10,254	5,828	9,114	1,101	6,576	19,623	22,290
Paraguay	0	0	0	0	0	0	0	0	2,504	*18,413
Total	**41,883**	**53,241**	**50,499**	**65,452**	**51,273**	**48,843**	**29,684**	**58,351**	**81,474**	**102,203**

Key: * Figure derived from importer data

Argentina: Reported exports increased between 2004 and 2009, peaking at 10,194 skins; exports then declined in each of the three subsequent years (Table 9) and although no report has been received from Argentina for 2013 no imports from Argentina have been reported by trading partners. The main destination of the skins was the United States and the majority of the skins were reported to be from ranching operations.

Bolivia: Reported exports fluctuated between around 34,000 and 51,000 skins between 2004 and 2008 but decreased in 2009 and 2010. Bolivia's annual report for 2011 shows an increase in exports and, although Bolivia's annual reports for 2012 and 2013 have not yet been received, the reports of importing countries for this period suggest this trend continued. Skins from captive-bred animals made up around 35 per cent of the total in 2010 and 2011 but decreased to 27 per cent in 2012. In 2013 skins from captive-bred or ranched individuals comprised 30 per cent of the total.

Brazil: Annual reports from Brazil for the years 2005 and 2006 do not clearly distinguish whole skins, skin pieces and manufactured items. Data for these years have therefore been taken from the reports of the importing countries, notably Mexico and the United States (Table 9). Exports reported by Brazil increased substantially between 2010 and 2013, from 1,101 to over 22,000 skins; while all skins exported in 2010 were captive-bred and primarily destined for Colombia, the majority of the skins traded in subsequent years were ranched and exported more widely.

Paraguay: Paraguay imposed a moratorium on all exports of wildlife in September 2003 as a result of the findings of a technical mission from the CITES Secretariat. This moratorium was partially lifted in 2009 (CITES Notification to the Parties No. 2009/036 of 10 August 2009) and further partially lifted in 2011 (CITES Notification to the Parties No. 2011/009 of 19 January 2011) to allow exports of existing stocks of skins legally acquired in 2001, 2002 or 2003 once the CITES Secretariat, in cooperation with the IUCN/SSC Crocodile Specialist Group, had confirmed their legal origin. No exports of skins were reported in trade until 2012, when Paraguay exported 2,506 skins, mostly to Spain. In 2013 importers reported receiving over 18,000 skins, all of which were wild-sourced. The moratorium was fully lifted in 2014 (CITES Notification 2014/009 of 10 February 2014).

Melanosuchus niger Black Caiman

The Brazilian population of this species was transferred from CITES Appendix I to Appendix II in 2007. Brazil reported the export of 11 skins in 2008 and six skins in 2009; No exports were reported in 2010 but 11 skins were exported in 2011, 275 in 2012 and 51 skins in 2013. All were reported to be wild-sourced, with the majority imported by Thailand.

All other crocodilian species

There have been no reported commercial exports from range States between 2004 and 2013 of skins of the

following taxa: *Crocodylus cataphractus*, *C. intermedius*, *C. palustris*, *C. rhombifer*, *Alligator sinensis*, *Osteolaemus tetraspis*, *Paleosuchus palpebrosus*, *P. trigonatus*, *Gavialis gangeticus* or *Tomistoma schlegelii*.

Trade in live animals

The commercial export of live crocodilians outside of their range States poses a potential threat to the natural biological diversity of the importing countries, particularly if naturalized populations become established. Indeed Spectacled Caiman, possibly discarded pet animals, can currently be found in Florida and the Everglades National Park where damage to natural fauna is being reported. The continued growth of the crocodilian farming industry means that such threats are likely to continue and should be guarded against.

Live crocodilians are traded for many purposes. Young animals are frequently kept as personal pets; circuses and zoos regularly exhibit such creatures and there are well-established crocodile breeding establishments in countries such as Denmark, France, Morocco, Spain and Thailand. Crocodile farms and ranches import animals to supplement their gene pool and some animals are imported by range States in order to strengthen wild populations. This variety of use, and the limited number of possible purpose codes used in CITES annual reports, means that some conclusions drawn from analysis of CITES data are only tentative. For example, the purpose code 'T', which indicates a commercial transaction, could apply equally if the animals were destined for either the pet trade or the farming industry. Below we consider the reported trade in live animals from range States on a species by species basis.

Alligator mississippiensis

The United States reported exporting two live animals to Spain (source 'F') in 2011, a further six to Spain and one to the Czech Republic in 2012, and a total of seven animals to the Czech Republic, France and Spain in 2013. The majority of this trade was reported as purpose 'T'.

Alligator sinensis

In 2011, China and the United States each exported two animals to France and Mexico, respectively, and in 2012 China exported three animals to Singapore. All reported exports were captive-bred or captive-born (sources 'C' and 'F') and traded for commercial purposes, breeding or zoos. No trade was reported for 2013.

Caiman crocodilus

Guyana: Guyana reported exports of 2,643 animals in 2011, 1,335 in 2012 and 1,405 in 2013. All were wild-sourced and the principal importer was the Netherlands.

Suriname: This country regularly exports small numbers of wild-caught animals for the pet industry (purpose 'T'); between 2011 and 2013, a total of 309 animals were exported from Suriname. The principal importer was Germany.

Venezuela: There have been no reports of live trade from Venezuela since 2009.

Caiman latirostris

In 2012, Malaysia reported importing two captive-bred animals from Argentina (purpose 'Z'); no other trade in live animals of this species was reported over the period 2011-2013.

Caiman yacare

In 2006, eight ranched animals were exported from Argentina to Denmark; no live animals have been reported in trade from range States subsequently.

Melanosuchus niger

No trade in live animals from range States was reported between 2011 and 2013.

Paleosuchus palpebrosus

In the years 2007-2013, Guyana published an annual export quota of 500 live, wild-sourced animals; the quota increased to 604 animals in 2014. Guyana reported exports of 408 animals in 2011, 514 in 2012 and 359 in 2013. It should be noted that although the annual reports cover the period January to December, the quota year for Guyana runs from April to April. The majority of animals were likely to be for the pet industry (recorded as purpose 'T'), with the main importing country being the United States.

Paleosuchus trigonatus

In the years 2003-2013, Guyana published an annual export quota of 1,000 live, wild-sourced animals. Exports reported by Guyana fell well short of this number, with 344, 463 and 219 animals exported in 2011, 2012 and 2013, respectively. The majority were reported as purpose 'T', the main importing country being the United States.

Crocodylus acutus

Although El Salvador reported the import of two seized/confiscated animals in 2010 from an unknown origin country, while Cuba, Ecuador and the United States exported a total of six captive-bred individuals for zoos in 2010. No live trade in this species was reported between 2011 and 2013.

Crocodylus mindorensis

The Czech Republic reported the import of six captive-bred animals from the Philippines in 2011 for zoos; no other trade in live animals of this species was reported in the period 2011-2013.

Crocodylus moreletii

In 2012, Mexico reported three shipments of 30, 75 and 75 captive bred animals to the United States which reported the import of only 30 animals; both countries reported the trade as purpose 'T'. No further trade was reported in 2013.

Crocodylus niloticus

Mozambique has been exporting hatchlings and juveniles to South Africa since the late 1980s, and more recently to Malawi and Zimbabwe. In 2011 reported trade in live animals from Mozambique included 3,000 animals to Malawi, 7,000 to South Africa (which reported importing 16,000) and 30 to Zimbabwe. The 2012 annual report from Mozambique shows exports of only 9 live animals whereas South Africa and Zimbabwe reported imports of 4,000 and 2,500 animals, respectively. In 2013 Mozambique reported exporting 150 animals to Malawi and 11,200 to South Africa. A further 699 animals were reported as exported to Singapore but these were not reported by the importer and might possibly have been skins, and maybe not imported until 2014. The majority of the trade 2011-2013 was in ranched animals and for purpose 'T'.

Crocodylus palustris

No live trade was reported in 2012 or 2013; in 2011, the Czech Republic reported importing two captive-bred animals from India for zoos.

Crocodylus porosus

Malaysia reported exporting 10 animals to Singapore in 2011 and Bangladesh reported importing 200 from Malaysia in 2013. Thailand reported exporting 20 captive-bred animals to Islamic Republic of Iran in 2011 and five and two animals to China and Japan respectively in 2012. In 2013 Viet Nam reported exporting 4,800 to China. All reported exports 2011-2013 were captive-bred and for purpose 'T'.

Crocodylus rhombifer

Cuba reported exporting four captive-bred animals to Suriname in 2011 however this could be an error as the Republic of Serbia reported an import of four from Cuba that year. The two-letter ISO code for Serbia is RS and for Suriname is SR.

Crocodylus siamensis

China is the principal importer of live specimens of *C. siamensis* and began importing this species from Thailand in 1997, from Cambodia in 2000 and from Viet Nam in 2003. As shown in Table 10, China has imported around 432,000 live specimens from these countries in the ten-year period 2004 to 2013, all of which were captive-bred and the majority for purpose 'T'. Since 2010, imports have fallen with exports from Thailand becoming negligible and those from Viet Nam increasing. A total of 35,030, 14,537 and 548 captive-bred live animals were exported from Cambodia, Thailand and Viet Nam, respectively, to countries other than China over the period 2004-2013. Cambodia has six crocodile farms registered with the CITES Secretariat for the commercial production of this species, while Thailand has 23 farms and Viet Nam has nine farms registered with the CITES Secretariat.

Table 10. Direct, commercial exports of live *Crocodylus siamensis* to China reported by the exporting countries, 2004-2013

Exporter	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Cambodia	5,000	0	0	0	1,500	1,400	0	0	0	0
Thailand	30,250	23,696	58,793	47,180	23,600	16,600	50,200	10,500	330	15
Viet Nam	3,200	9,300	13,000	24,050	41,400	11,137	10,600	12,000	15,000	23,513
Total	**38,450**	**32,996**	**71,793**	**71,230**	**66,500**	**29,137**	**60,800**	**22,500**	**15,330**	**23,528**

Trade in other by-products

Meat

Total global commercial exports of crocodilian meat, as reported in CITES annual reports from 2004 to 2013, are provided in Figure 6. Between 1990 and 2002, the quantity traded globally fluctuated at around 400 tonnes per year. Exports began an upward trend in 2003, and in 2007 peaked at just under a thousand t. They subsequently decreased to 400 t in 2009 but have risen each year until 2012 when 672 t was traded. Figures for 2013 show a decrease.

Since 1988, there have been major fluctuations in the countries and species involved in the meat trade. Until 1992, the main species in trade was *Alligator mississippiensis* from the United States, particularly to Canada, Japan, Taiwan, Province of China and the United Kingdom. No exports to Taiwan, Province of China have been reported since 1994 and exports of meat from this species have fallen since 1995; the principal importers in 2011-2013 were Canada and Hong Kong, SAR.

Exports of *Crocodylus niloticus* meat, which originate mainly from South Africa, Zambia and Zimbabwe, increased steadily from less than two tonnes in 1992 to over 550 t in 2007, but then decreased to less than 120 t in 2009. Exports subsequently recovered and were around 250 t in both 2011 and 2012, however 2013 showed a decline to under 130 t. Reporting of the crocodile meat trade by southern African countries appears to be of varied quality based on comparisons with importer data. The main destinations for *C. niloticus* meat 2011-2013 were Europe, Hong Kong, SAR and China.

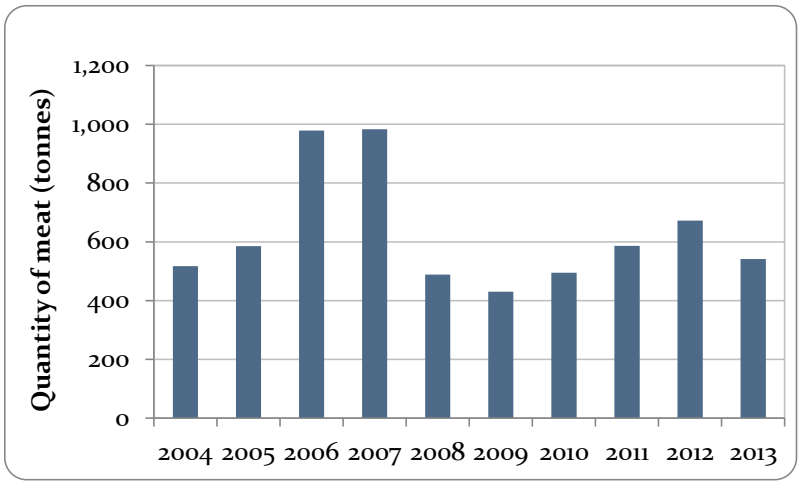


Figure 6. Direct, commercial global exports of crocodilian meat, 2004–2013

Exports of meat of both *Crocodylus novaeguineae* and *C. porosus* from Indonesia increased up to 2000; however, exports from both species subsequently declined, with less than 2,000 kg *C. porosus* meat exported annually between 2005 and 2008, and only 500 kg of *C. novaeguineae* meat exported over the period 2003-2009. Exports of *C. porosus* subsequently increased to 5,050 kg in 2011 and 9,000 kg in 2012, but only 7,000 kg were reported by importers in 2013.

Australia's exports of *C. porosus* meat increased from 53 t in 2000 to 57 t in both 2001 and 2002, but then fell to below 20 t annually between 2004 and 2009. Exports increased to over 28 t in 2010 but fell to just 8 t

in 2011 according to the Australian annual reports for those years, however Japan's annual report for 2011 suggests a further 10 t were imported from the country. In 2012, Australia's reported exports increased to over 52 t. In 2013 Australia's reported exports fell again to just over 10 t. The main destinations for Australia's production 2011-2013 were Canada, Japan, Malaysia, New Zealand and the United States.

Papua New Guinea's annual reports only appear to include trade in crocodile skins and teeth, however Australia reported importing 15 t of *C. porosus* meat from the country in 2009 and a further 12 t in 2011.

The biggest change in the crocodilian meat trade in recent years has been the expansion of the trade in *Crocodylus siamensis* since 2003. Until 2005, Thailand was the only exporter of *C. siamensis* meat and exports averaged about 35 t annually between 1999 and 2003. Exports from Thailand increased to almost 400 t in 2006 but declined in the following two years. Exports from the country subsequently increased every year to over 350 t in both 2012 and 2013; the main importers 2011-2013 were China, Hong Kong, SAR, Malaysia and Singapore. Exports of *C. siamensis* meat from Viet Nam decreased from 5.5 t in 2008 to only 123 kg in 2010; Viet Nam exported 850 kg to Germany and the Russian Federation in 2011, a further 200 kg to Germany in 2012 and two kilograms in 2013.

Teeth

Australia is the world's foremost importer of crocodile teeth; between 2011 and 2013, exports from Papua New Guinea and Singapore to the country together amounted to 140,000 teeth and almost 12 t of teeth. Most of the teeth were obtained from *Crocodylus porosus*, mostly from captive-breeding operations, although over 12,000 of the teeth exported by Papua New Guinea in 2013 were from wild specimens.

Declared dollar value

Although CITES annual reports do not usually contain information concerning the value of the trade or of individual shipments, the United States has included this information in its annual reports since 1997. There is great fluctuation amongst the reported values and no indication of the size or quality of the skins is provided; furthermore, for caiman species, flanks may have been reported as whole skins which further complicates interpretation of the data. Values that appear erroneous and are likely to have been the result of typographic errors have been ignored in the analysis below. The average declared value per skin (in US$) of exports of *Alligator mississippiensis* skins and the reported value of re-imports of these skins from Europe, Mexico and Asia after tanning are provided in Table 11. Although the value of the original exports fluctuates from year to year, the value of the re-imports has been consistently higher.

Table 11. Reported US dollar value of *Alligator mississippiensis* skins (per skin) exported and re-imported by the United States, 2004-2013

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Exports by USA	112.5	142.6	177.9	232.9	242.2	193.3	136.0	167.5	194.9	241.1
Re-imports by USA	144.9	168.3	193.5	253.4	254.8	394.7	236.9	245.7	260.1	407.5

Source: United States annual reports to CITES

Table 12 compares the average value per skin of Colombian *Caiman crocodilus fuscus* imported directly from Colombia and via third countries, as reported by the United States. The re-exporters of skins vary from year to year, but the majority are imported directly from Colombia or via Singapore. The declared value of the direct imports from Colombia remained at around US$50 per skin between 2002 and 2008 but increased notably in 2009. Following a slight decrease in 2010, the reported value increased year on year to reach US$79.1 per skin in 2013, the highest value recorded over the decade. The value of skins imported from third countries was comparatively lower on average than those imported directly from Colombia, although there is some degree of variation between different re-exporters and different years.

Table 12. Reported US dollar value of *Caiman crocodilus fuscus* skins (per skin) originating in Colombia and imported by the United States, 2004-2013

(Re-)Exporter	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Colombia	46.8	50.6	50.8	54.4	52.5	72.2	65.3	73.4	76.6	79.1
European Union	-	28.0	34.5	-	-	87.3	54.9	71.0	99.9	61.6
Mexico	-	97.8	31.2	50.0	36.3	38.0	34.5	33.0	34.0	23.4
Panama	-	-	-	-	-	-	-	-	-	-
Singapore	43.4	43.1	46.7	46.1	44.3	47.3	50.5	46.2	58.1	47.2
Switzerland	29.5	33.9	41.3	28.5	-	33.0	-	-	-	-
Thailand	54.0	53.8	62.0	63.0	-	31.3	-	-	-	-

Source: United States annual reports to CITES

Reported seizures

Information on seizures is reported inconsistently in CITES annual reports. Furthermore, the data recorded by Customs rarely allow the goods to be identified at the species level. Most of the seizures that are reported are of tourist items such as dried heads, whole stuffed baby crocodiles, etc., and personal imports of manufactured leather goods. Many of the items seized on import are subsequently released to the importer when adequate permits have been obtained. It should be noted that source code 'I' not only covers seizures but the further re-exportation or repatriation of the seized material.

Of the more notable seizures reported in the period 2011-2013, in 2011 the United States reported seizures of 15 *Crocodylus niloticus* skins from Mali, 623 *Alligator mississippiensis* skins and 2,100 *Caiman crocodilus fuscus* skins from Singapore (originating in the United States and Colombia, respectively), and 1,702 skins of *Caiman crocodilus fuscus* imported directly from Colombia. In 2012 no notable seizures were reported but the United States reported exporting a total of 12,263 *A. mississippiensis* skins to France, Italy and Thailand for commercial purposes with source code 'I'. Similarly in 2013 the United States reported exporting 21,864 skins with source code 'I' to France, Italy, Singapore and Thailand.

Recommendations

The following recommendations made in previous IACTS reports remain valid:

- Countries should, where possible, adopt the CITES standard permit number format which identifies both the exporting country and the year of permit issuance (see CITES Resolution Conf. 12.3 (Rev. CoP16) on Permits and certificates). This would allow for more accurate cross matching of shipments.
- Standardisation of the terminology used to describe parts of crocodilian skins would reduce the danger of double-counting and subsequent overestimation of trade levels. In particular, there is confusion between hornbacks and backskins for *Crocodylus niloticus* and between whole skins and sides for caiman.
- As the source of specimens (e.g. wild, captive-bred, etc.) provides critical information for determining the conservation impact of trade, CITES Parties should strive to accurately report the source of crocodilian material as defined in the *Guidelines for the preparation and submission of CITES annual reports* (see CITES Notification No. 2011/019).
- Countries with large-scale farming operations should establish strict monitoring and management programmes for their wild crocodilian populations, and any farming of non-native species should be strictly regulated to ensure there are no escapes into the wild. Although breeding in captivity can alleviate pressure on wild populations, it can also remove the incentive to preserve them.
- It is recommended that the CITES Secretariat and the Chairman of the Standing Committee contact Parties in June of each year to remind them of their reporting obligations under Article VIII, paragraphs 6 and 7 of the Convention.
- Wherever possible, Parties should report the actual quantities of skins being traded, and should specify whether their annual reports are compiled on the basis of actual trade or permits issued.

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Annex: Purpose and source codes

Table 13. Codes for purpose of trade

Code	Description
B	Breeding in captivity or artificial propagation
E	Educational
G	Botanical gardens
H	Hunting trophies
L	Law enforcement/judicial/forensic
M	Medical (including biomedical research)
N	Reintroduction or introduction into the wild
P	Personal
Q	Circuses and travelling exhibitions
S	Scientific
T	Commercial / Trade
Z	Zoos

Table 14. Codes for source of specimens in trade

Code	Description
A	Annex A plants artificially propagated for non-commercial purposes and Annexes B and C plants artificially propagated in accordance with Chapter XIII of Regulation (EC) No 865/2006, as well as parts and derivatives thereof
C	Annex A animals bred in captivity for non-commercial purposes and Annexes B and C animals bred in captivity in accordance with Chapter XIII of Regulation (EC) No 865/2006, as well as parts and derivatives thereof
D	Annex A animals bred in captivity for commercial purposes and Annex A plants artificially propagated for commercial purposes in accordance with Chapter XIII of Regulation (EC) No 865/2006, as well as parts and derivatives thereof
F	Animals born in captivity, but for which the criteria of Chapter XIII of Regulation (EC) No 865/2006 are not met, as well as parts and derivatives thereof
I	Confiscated or seized specimens[7]
O	Pre-Convention specimens
R	Specimens originating from a ranching operation
U	Source unknown (must be justified)
W	Specimens taken from the wild

[7] To be used only in conjunction with another source code.