

World trade in crocodilian skins 2010-2012

Prepared as part of the International
Alligator and Crocodile Trade Study

by John Caldwell

World trade in crocodilian skins 2010-2012

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UNEP World Conservation Monitoring Centre (UNEP-WCMC)

219 Huntingdon Road,
Cambridge CB3 0DL, UK

Tel: +44 1223 277314

www.unep-wcmc.org

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Executive summary

All crocodylians 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 2003 with special emphasis on the years 2010 to 2012, 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 crocodylus crocodylus*, *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 begun to increase again, particularly through Nile Crocodile *Crocodylus niloticus* from South Africa and Zimbabwe, Saltwater Crocodile *C. porosus* from Australia, Indonesia and Papua New Guinea, and Yacaré Caiman *Caiman yacare* from Bolivia. Over four million skins were reported in trade over the three-year period 2010-2012.

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 2010-2012, nearly 100,000 live *C. siamensis* were involved in this trade.

Crocodylian meat is traded widely but is particularly favoured in the Far East, especially China and Hong Kong, S.A.R; the top species in trade in the period 2010-2012 were *C. niloticus* and *C. siamensis*. Trade increased every year between 2003 and 2007, peaking at nearly 1,000 t in before falling back to previous levels. However, trade again appears to be increasing, with quantities of over 600 t reported in both 2011 and 2012.

Introduction

This report, the twenty-first produced by UNEP-WCMC for the International Alligator and Crocodile Trade Study (IACTS), examines the international trade in crocodylian skins, with a particular focus on the years 2010 to 2012, but also refers to trends over a longer timescale. 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 all years up to 2012. A list of annual reports for 2010-2012 that were included in the CITES Trade Database at the time of analysis (August 2014) is provided (Table 1).

All direct, commercial trade in whole skins and sides, live animals, meat and teeth of crocodylian 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 2012 should have been submitted by 31 October 2013. However, at the time of analysis (August 2014), several reports that might contain important crocodylian data had still not been received by the CITES Secretariat. These include Bolivia (2012), Botswana (2011 and 2012), Egypt (2012), Ethiopia (2012), Israel (2012), Lao P.D.R. (2010, 2011 and 2012), Malawi (2010, 2011 and 2012) and Panama (2012).

Table 1. CITES annual reports for 2010-2012 available for analysis as of August 2014

Country	2010	2011	2012
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	✓	✓	✓
Dominican Republic	✓	✓	✓
Ecuador	✓	-	-
Egypt	✓	✓	-

Country	2010	2011	2012
El Salvador	✓	✓	✓
Equatorial Guinea	✓	✓	✓
Eritrea	✓	✓	✓
Estonia	✓	✓	✓
Ethiopia	✓	✓	-
Fiji	✓	-	-
Finland	✓	✓	✓
France	✓	✓	✓
Gabon	✓	-	✓
Gambia	-	-	-
Georgia	✓	✓	✓
Germany	✓	✓	✓
Ghana	✓	✓	✓
Greece	✓	✓	✓
Greenland	✓	-	✓
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	✓	✓	✓
Macedonia, Former Yugoslav Republic of	✓	✓	✓
Madagascar	✓	✓	✓
Malawi	-	-	-
Malaysia	✓	✓	✓

Country	2010	2011	2012
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	✓	✓	✓
Slovakia	✓	✓	✓
Slovenia	✓	✓	✓
Solomon Islands	✓	-	-
Somalia	-	-	-

Country	2010	2011	2012
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

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 crocodylian 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 crocodylian trade continues; however, the absence of annual reports from certain key producer countries continues to be a hindrance to timely analysis of the trade.

Overview of global trade in crocodylian skins

The overall volume of world trade in classic crocodylian and caiman skins has been variable over the ten-year period 2003 to 2012, with an average of 1.334 million skins¹ exported annually (Table 2; Figure 1). The total number of skins entering international trade in 2012 was approximately 1.4 million, a slight increase over the two previous years. Indeed, apart from a peak in 2006 followed by three years of decline, overall global trade would appear to have been remarkably stable over the decade. Trade in skins of *Alligator mississippiensis* from the United States of America (hereafter referred to as the United States) increased slightly in 2012 over the 2011 figure as did *Crocodylus niloticus* skins from southern Africa. Exports of *Caiman crocodylus fuscus* from Colombia decreased slightly compared to the previous year while *Caiman yacare* exports from Bolivia and Brazil showed an increase, while caiman exports from the Bolivarian Republic of Venezuela (hereafter referred to as Venezuela) fell slightly from the previous year.

The species composition of the trade in skins varied over the ten year period 2003-2012. Some diversification of the species in trade began at the beginning of this period 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 crocodylus crocodylus* skins from Guyana occurred in 2001 and continued through 2012, while 2005 saw the first exports of ranched *Caiman yacare* from Argentina.

Exports of *Crocodylus niloticus* had remained steady at between 140,000 and 170,000 skins per year between 2002 and 2010 with South Africa, Zambia and Zimbabwe being the main suppliers. In 2011 and

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

2012 there was a slight increase from most of the major producers. *C. novaeguineae* production recovered slightly after having declined in the two previous years, while there continues to be a steady increase in trade in *C. porosus*. 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 2011 but fell to under 30,000 in 2012, 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 crocodylian skins from the main taxa,

2003-2012

Taxon	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<i>Alligator mississippiensis</i>	341,734	368,409	353,903	422,931	262,127	230,464	297,187	369,731	312,542	326,538
<i>Crocodylus acutus</i>	830	227	204	120	404	1,371	1,460	200	1,392	1,618
<i>Crocodylus johnstoni</i>	0	0	65	0	0	0	0	0	0	0
<i>Crocodylus moreletii</i>	997	549	855	158	11	724	485	0	184	679
<i>Crocodylus niloticus</i>	150,523	140,497	140,887	156,221	147,695	161,698	149,084	167,926	213,744	199,403
<i>Crocodylus novaeguineae</i>	27,308	39,796	32,002	38,645	28,663	25,638	26,212	24,480	16,632	23,968
<i>Crocodylus porosus</i>	26,564	30,638	37,441	34,152	45,249	52,808	46,089	57,657	63,880	73,326
<i>Crocodylus siamensis</i>	10,982	20,930	31,517	47,972	54,331	63,471	34,373	33,094	35,810	35,650
Subtotal of 'classic' skins	558,938	601,046	596,874	700,199	538,480	536,174	554,890	653,088	644,184	661,182
<i>Caiman crocodilus crocodilus</i>	34,636	70,722	65,078	69,574	44,894	36,989	43,638	24,643	44,257	47,130
<i>Caiman crocodilus fuscus</i>	572,559	621,691	603,223	972,041	670,958	533,549	406,381	651,121	634,761	625,128
<i>Caiman latirostris</i>	165	215	2,752	1,669	1,125	809	394	1,933	2,973	4,594
<i>Caiman yacare</i>	60,788	41,883	53,241	50,499	65,452	51,273	48,843	29,684	58,351	78,420
<i>Melanosuchus niger</i>	0	0	0	0	0	11	6	0	11	275
Subtotal of caiman skins	668,148	734,511	724,294	1,093,783	782,429	622,631	499,262	707,381	740,449	755,547
Grand total	1,227,086	1,335,557	1,321,168	1,793,982	1,320,909	1,158,805	1,054,152	1,360,469	1,384,633	1,416,729

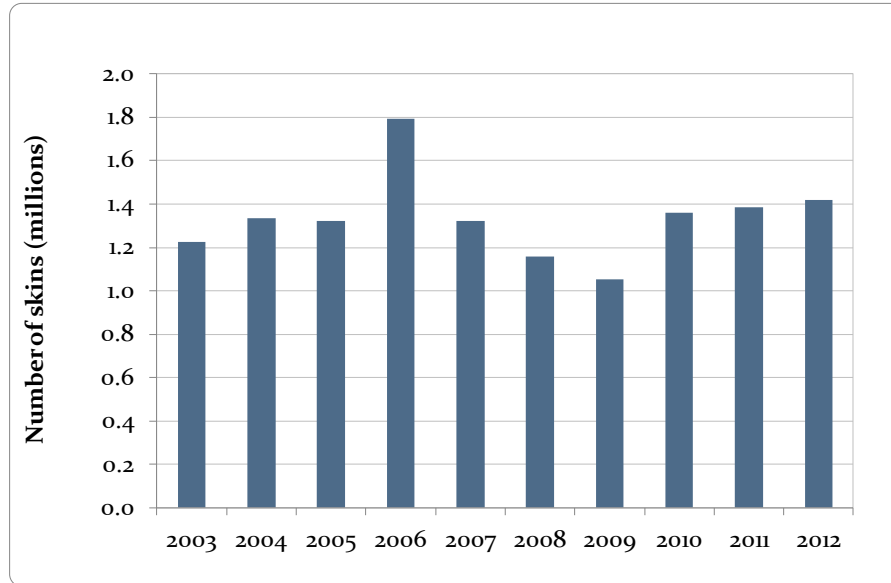


Figure 1. Direct, commercial global exports of crocodilian skins, 2003-2012

Species accounts

Crocodylus acutus American Crocodile

Colombia has six 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 1,618 captive-bred skins in 2012. Almost all of the skins exported by Colombia between 2007 and 2009 were imported by Italy, whilst subsequently skins have also gone to France, 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. Panama was 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 peaked at 2,430 in 2001 and subsequently decreased, remaining below 1,000 skins per annum from 2003 onwards, all of which were

captive-bred and exported by Mexico (Figure 2). No exports were reported in 2010, fewer than 200 in 2011 and 657 in 2012; importers in 2012 were France, Spain, United Kingdom and Thailand.

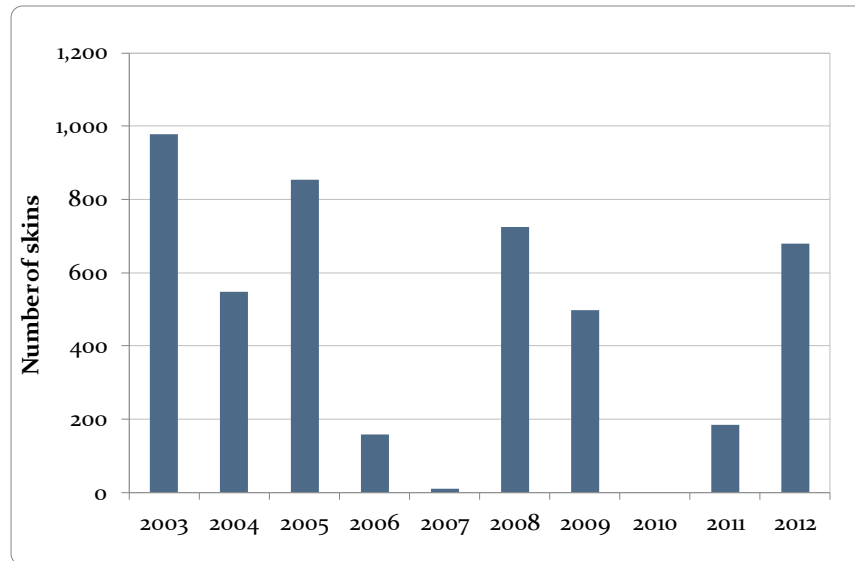


Figure 2. Direct, commercial exports of *Crocodylus moreletii* skins reported by Mexico, 2003–2012

Crocodylus niloticus Nile Crocodile

Over the period 2003–2012, an average of 163,000 *Crocodylus niloticus* skins were exported globally per year, with an increasing trend over the period 2010–2012 (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 only 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, 2003-2012

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Botswana	0	0	0	0	*320	*374	*1,626	*1,500	●2,000	*2,800
Brazil	1	44	0	0	0	0	0	0	0	0
Ethiopia	■900	■300	■347	■727	*594	■492	0	4	*77	*400
Israel	0	0	0	0	0	*1	*2	0	0	*18
Kenya	*1,687	2,850	10,950	8,710	6,354	4,504	4,283	4,309	4,180	6,686
Madagascar	7,300	4,760	4,850	6,660	5,500	2,640	2,450	0	0	0
Malawi	301	*100	*1,038	698	*1,350	3,370	2,603	*500	*2,256	*3,549
Mali	0	0	0	0	0	107	0	0	15	0
Mauritius	118	400	150	83	180	189	100	0	338	150
Mozambique	5,130	0	1,156	2,021	179	566	0	2,449	18,788	3,370
Namibia	0	0	400	305	0	0	600	2	200	800
Senegal	0	0	0	2	0	1	0	0	0	0
South Africa	31,321	35,760	25,274	23,542	30,514	37,627	25,050	53,329	57,298	77,473
Sudan						2		20		
Uganda	600	600	*600	*300	0	*290	0	500	0	405
U.R.Tanzania	*1,439	*1,067	*1,584	*1,100	*1,556	*1,784	1,365	601	*475	0
Zambia	28,019	26,353	*31,392	*40,457	*36,658	28,197	43,655	23,717	37,584	15,331
Zimbabwe	68,876	60,185	70,416	80,873	54,810	59,509	939	29,297	22,557	80,366
	◆73,707	◆68,263	◆63,146	◆71,616	◆64,490	◆81,554	◆67,350	◆80,995	◆90,533	◆88,421
Total	150,523	140,497	140,887	156,221	147,695	161,698	149,084	167,926	213,744	199,403

Key: * Figure derived partly or in full from importer-reported data; ● data supplied by FAO²; ■ Data supplied from EWCO (the Ethiopian Wildlife Conservation Organisation, the CITES Management Authority of Ethiopia.)³; ◆ Data supplied by CFAZ (the Crocodile Farmers Association of Zimbabwe)⁴; these data have been used for the totals.

Exports by range States

Botswana: No commercial exports of skins were reported by Botswana between 1997 and 2010, despite Botswana submitting annual reports during this period. However, South Africa reported importing skins from individuals captive-bred in Botswana in 2001, 2008, 2009 and 2010, as well as 320 ranched skins in 2007. Although no annual report has been submitted by Botswana for 2011 or 2012, data received from FAO (see Table 3) suggest that 2,000 skins were exported in 2011 and South Africa reported the import of 2,800 captive-bred skins from Botswana in 2012. South Africa 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 2003 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

² Luca Garibaldi on behalf of FAO, *pers. comm.* 5-12-2012 and 24-09-2013.

³ Kumara on behalf of Arbaminch Crocodile Ranch, *pers. comm.* 20-10-2009.

⁴ Sue Childes on behalf of CFAZ, *pers. comm.* numerous dates.

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 report for 2012 has not yet been received.

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

Kenya: Kenya reported exporting 4,309 skins in 2010 and 4,180 in 2011. A further 6,686 skins were exported in 2012 with the importers being Italy, Singapore, South Africa and Taiwan, Province of China. All skins were reported to be from ranching operations, with the exception of 500 skins reportedly of captive-bred origin exported in 2012.

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). Although some imports were reported in 2010, the export permits concerned had been issued the previous year and no trade in skins of this species from Madagascar has been reported subsequently.

Malawi: No annual report has been received from Malawi for 2010, 2011 or 2012; the import of 500 skins was reported by Germany in 2010 (of which 100 were wild-sourced and the remainder ranched), while a total of 2,256 skins were reportedly imported by Germany and Singapore in 2011 (of which 96 were wild-sourced and the remainder ranched). In 2012, 3,549 skins (110 wild, 500 captive-bred and the remainder ranched) were reported as imports by Germany, Singapore and South Africa.

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 but no countries have reported any imports from the country.

Mozambique: Mozambique reported exporting a total of 2,449 skins in 2010. Of these, 403 were wild-caught skins exported to South Africa, with the remainder of ranched origin destined for Mexico and Singapore. In 2011 Mozambique reported exports of 18,788 skins, mostly to Singapore which reported importing 17,058 skins from ranched animals. In 2012 Mozambique reported exporting 3,370 skins, mostly ranched and destined for Singapore and Zambia.

Namibia: Namibia reported exporting two captive-bred skins to Hong Kong in 2010, 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.

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 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 2010, 2011 and 2012 indicate the commercial export of 53,329, 57,298 and 77,473 skins respectively. Although there are no known commercial ranching operations in South Africa, 9,536 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.

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 trade has been reported subsequently. Sudan has no captive breeding operations registered with the CITES Secretariat.

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

Uganda: The Republic of Korea reported imports from Uganda of 500 captive-bred skins in 2010 that Uganda, apparently erroneously, reported as being wild-caught skins going to the Democratic People's Republic of Korea. 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.

Tanzania: Tanzania reported the commercial export of 601 skins in 2010, the majority of wild origin and exported to Singapore. 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.

Zambia: Zambia reported exports of 23,717, 37,584 and 15,331 skins in 2010, 2011 and 2012, respectively, of which the vast majority were ranched and exported to Singapore. Although Zambia reported the export of notable quantities of wild-sourced skins in 2011, importer-reported data suggests that many of these were from ranched animals.

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 2010, Zimbabwe's annual report recorded the export of 30,285 skins whereas importers reported over 100,000 skins and CFAZ data indicate exports of 80,995 skins. A similar discrepancy occurred in 2011. 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. However, 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 2012.

Exports from non-range States with commercial crocodile farms

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

Israel: The only trade from Israel reported since 2002 was the import of two skins reported by Germany in 2009 and 18 skins reported by Greece and Italy in 2012.

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. No direct exports were reported in 2011.

Crocodylus novaeguineae New Guinea Crocodile

Over the ten-year period 2003 to 2012, 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 (Table 4).

Table 4. Direct, commercial exports of *Crocodylus novaeguineae* skins from producer countries, 2003-2012

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Indonesia	8,826	10,481	13,585	16,575	12,759	10,588	7,255	7,450	8,846	11,097
Papua New Guinea	18,482	29,315	18,417	22,070	15,904	15,050	18,957	17,030	7,786	*12,871
Total	27,308	39,796	32,002	38,645	28,663	25,638	26,212	24,480	16,632	23,968

Key: * Figure derived partly or in full 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. The main importers of *C. novaeguineae* skins 2010-2012 were Japan and Singapore.

Papua New Guinea: Exports decreased from over 22,000 skins in 2006 to 15,050 skins in 2008. Although the following year showed a slight increase, exports dropped over the two subsequent years to 7,786 in 2011. Importer-reported data suggests a slight increase in 2012 to 12,871 skins. Between 2010 and 2012, all of the skins were exported to Japan and Singapore. 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 and 2009, the total number of *C. porosus* skins exported increased between 2001 and 2012, rising to a total of 73,334 skins in 2012. Exports of *C. porosus* skins from range States between 2003 and 2012 are presented in Table 5.

Table 5. Direct, commercial exports of *Crocodylus porosus* skins from range States, 2003-2012

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Australia	*14,744	*12,741	*20,409	*16,123	*21,314	*29,353	*27,091	*34,561	*42,068	*43,720
Brunei Darussalam	0	0	0	0	0	0	0	0	0	5
Indonesia	2,732	3,968	4,714	3,825	5,151	5,718	5,967	4,302	7,934	9,613
Malaysia	*618	*1,450	*1,058	*1,684	*1,273	*1,043	*1,010	*1,303	*436	*1,807
Papua New Guinea	8,000	11,043	10,222	10,208	12,675	12,237	9,900	15,787	9,432	*10,492
Philippines	0	0	0	0	34	*20	892	0	*700	*2,758
Singapore	470	1,136	538	1,712	1,653	1,877	0	0	0	0
Thailand	0	300	500	600	3,149	2,560	1,229	1,704	3,310	4,931
Total	26,564	30,638	37,441	34,152	45,249	52,808	46,089	57,657	63,880	73,326

Key: * Figure wholly or partly 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 2010-2012 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 9,600 skins in 2012. The main importers 2010-2012 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 over 80 per cent in 2012.

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 1,807 skins in 2012 following a trough in 2011. 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 farms⁵. Although exports in 2011 decreased to 9,432 skins, numbers increased to 10,492 in 2012 according to annual reports of importing countries. Only 28 per cent of the skins reported in 2012 were from wild-caught specimens.

Philippines: There are two farms registered with the CITES Secretariat to produce this species. No annual reports have been received from the Philippines since 2009 but importer reports suggest that 700 skins were exported in 2011 (to Japan and Singapore) and a further 2,758 skins in 2012 (to Singapore only), all of which were recorded as source 'D'.

Singapore: All of Singapore's reported commercial exports of skins 2002-2008 were captive-bred; there are two registered captive-breeding operations in the country. Most of the skins were exported to France, Italy and Japan. No exports have been reported since 2008 (Table 5).

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 4,931 skins in 2012 (Table 5). All exports were from animals bred in captivity; there are 13 CITES-registered captive-breeding operations for this species in Thailand. The principal importer 2010-2012 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.

⁵ Eric Langelet (IUCN Crocodile Specialist Group), *pers. comm.* 12-09-2010.

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 from 10,982 skins in 2003 to 39,109 skins in 2008. Exports decreased in 2009 but subsequently increased to about 30,000 skins per year between 2010 and 2012 (Figure 3). The main importers in the period 2010-2012 were Japan and Singapore.

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 7,000 skins in both 2011 and 2012 (Figure 3). Japan, Thailand, China and Singapore were the main destinations of the skins between 2010 and 2012. All skins exported were reported as captive-bred; Viet Nam has seven captive-breeding operations registered with the CITES Secretariat for this species.

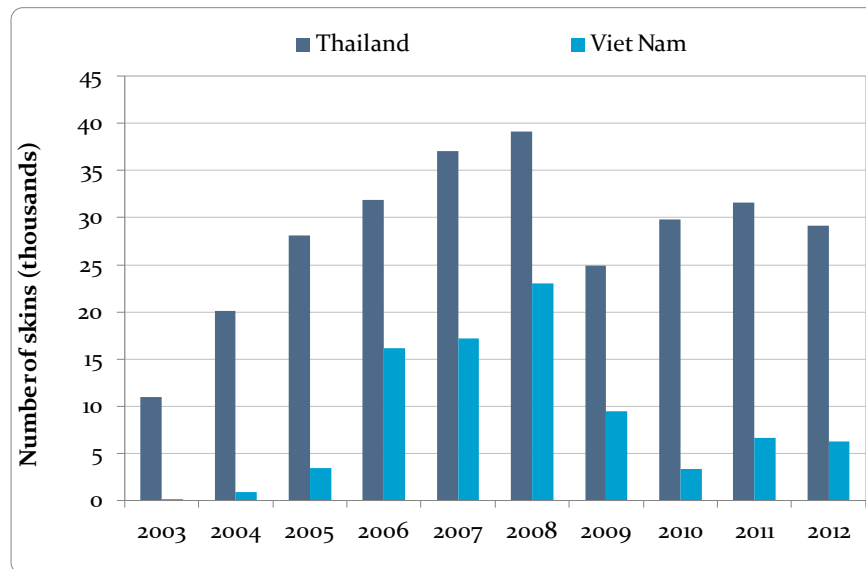


Figure 3. Direct, commercial exports of *Crocodylus siamensis* skins reported by Thailand and Viet Nam, 2003–2012

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 6; Figure 4). The source of this dramatic 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 by almost 30 per cent in 2009 and appear to have stabilised at between 310,000 and 370,000 per year subsequently. Between 2010 and 2012, four countries, France, Germany, Italy and Singapore, together imported 91 per cent of production.

Table 6. Direct, commercial exports of *Alligator mississippiensis* skins reported by the United States, 2003–2012

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
341,734	368,409	353,903	422,931	262,127	230,464	297,187	369,731	312,542	326,538

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 crocodylian 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 12,263 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 2005⁶. This species is also bred in captivity in Israel, but there have been no reported exports of skins from Israel since 2001.

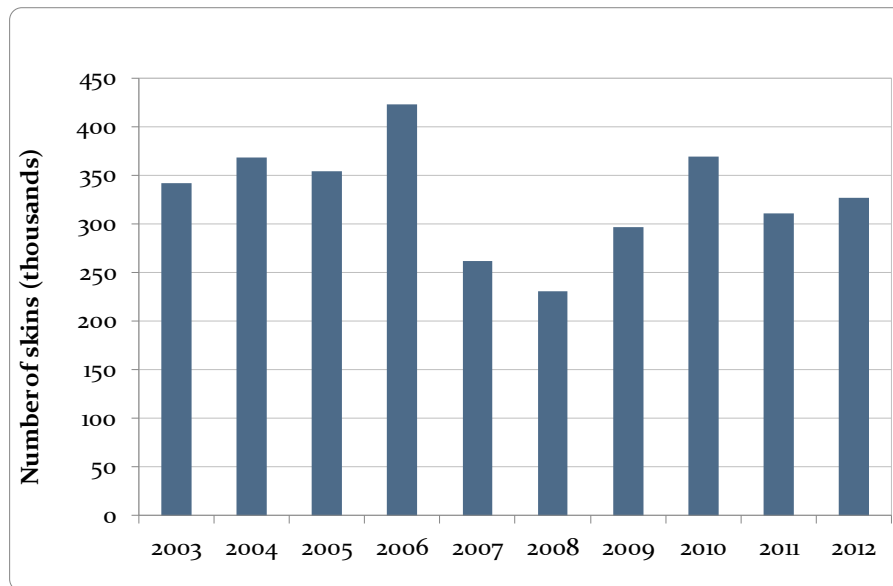


Figure 4. Direct, commercial exports of *Alligator mississippiensis* skins reported by the United States, 2003-2012

Caiman crocodilus crocodilus Spectacled Caiman

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 5). Subsequently, exports reported by Venezuela in 2011 and 2012 show an increase to between 25,000 and 30,000 skins.

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 16,250 skins in 2010, 16,460 in 2011 and 18,000 in 2012, all wild-sourced, with the majority destined for Mexico.

⁶ Luca Garibaldi on behalf of FAO, *pers. comm.* 7-01-2014

Colombia reported exports of between 3,000 and 6,200 captive-bred skins every year between 2003 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.

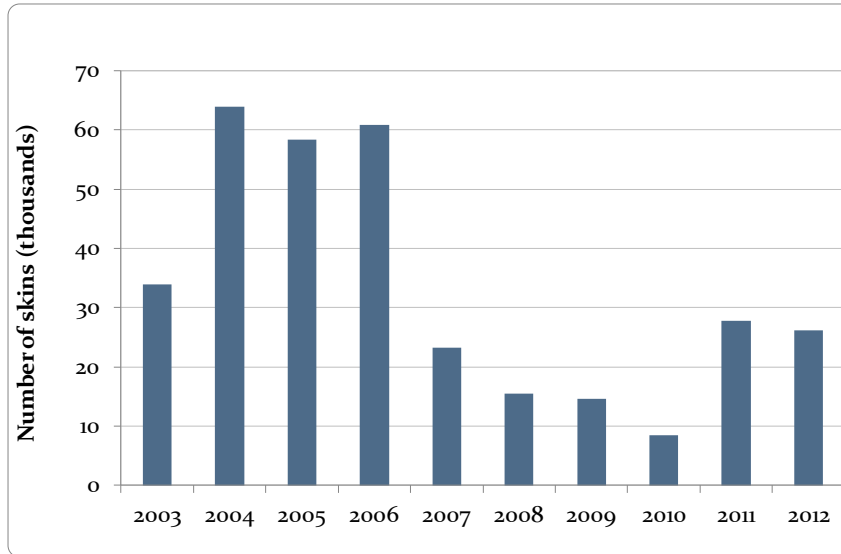


Figure 5. Direct, commercial exports of *Caiman crocodilus crocodilus* skins reported by Venezuela, 2003-2012

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 7. Direct, commercial exports of *Caiman crocodilus fuscus* skins from Colombia and Panama, 2003-2012

Exporter	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Colombia	552,719	605,841	599,527	969,731	668,076	532,394	405,386	647,565	634,461	625,128
Panama	19,840	15,850	*3,696	*2,310	2,882	1,155	*995	3,556	300	*0
Total	572,559	621,691	603,223	972,041	670,958	533,549	406,381	651,121	634,761	625,128

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 (Figure 7). The proportion of Colombia's skin production exported to Singapore fluctuated between 47 and 56 per cent between 2003 and 2009, and most of the skins were subsequently re-exported. However, from 2010 onwards, less than 25 per cent of Colombia's skins were exported to Singapore, with Mexico and Thailand together importing almost half of production. Other major importers include Europe, the Republic of Korea and the United States.

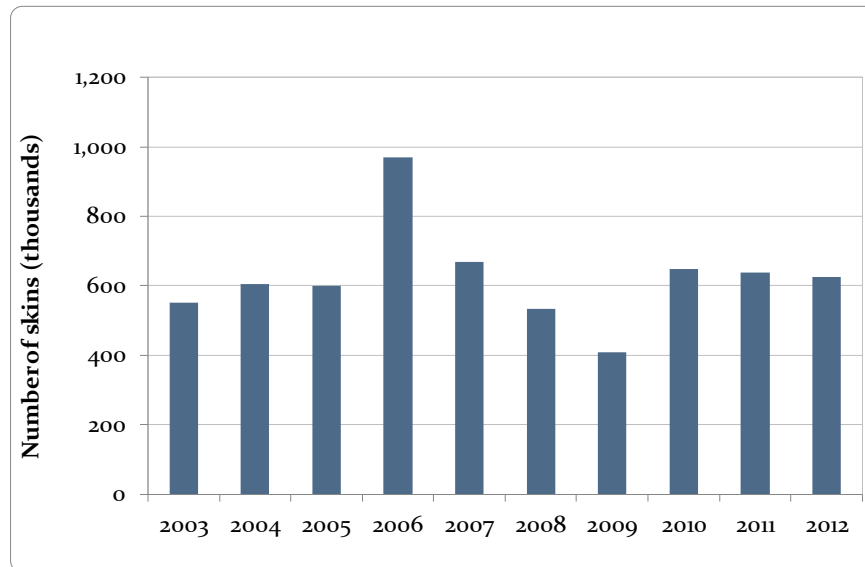


Figure 6. Direct, commercial exports of *Caiman crocodilus fuscus* skins reported by Colombia, 2003-2012

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 7 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.

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. All skins were reportedly from ranched animals; the principal importer was Italy.

Caiman yacare 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 increased again in both 2011 and 2012, the latter figure according to importer-reported data (Table 8). Captive-bred skins accounted for about 17 per cent of the trade in those two years.

Table 8. Direct, commercial exports of *Caiman yacare* skins from producer countries, 2003-2012

Exporter	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Argentina	0	1	1,291	2,883	6,083	3,851	10,194	4,391	3,159	*2,037
Bolivia	43,528	34,878	51,330	44,443	49,115	41,594	29,535	24,192	48,616	*54,287
Brazil	12,851	7,004	*620	*3,173	10,254	5,828	9,114	1,101	6,576	19,623
Paraguay	4,409	0	0	0	0	0	0	0	0	*2,473
Total	60,788	41,883	53,241	50,499	65,452	51,273	48,843	29,684	58,351	78,420

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 8). The main destination of the skins was the United States. The majority of the skins were reported to be from ranching operations, although 83 per cent of the skins reported by importers in 2012 were recorded as wild-sourced. Although Argentina has submitted an annual report for 2012, the quantity of *C. yacare* skins reported was negligible compared to that reported by importers so the latter figure has been used in Table 8.

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 report for 2012 has not yet been received, the reports of importing countries for 2012 suggest this trend continued. Bolivia's annual reports for 2010 and 2011 indicate exports of wild-sourced skins (traded as flanks) to Europe (Germany, Italy and Spain) and Japan, and captive-bred skins (traded as whole skins) to Mexico and the United States with small quantities going to Argentina, Colombia and France. Skins from captive-bred animals made up around 35 per cent of the total in 2010 and 2011 but decreased to 21 per cent in 2012.

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 8). Exports reported by Brazil increased substantially between 2010 and 2012, from 1,101 to over 19,000 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 ranching and exported to Bolivia and Mexico.

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 Germany reported importing eight skins and Spain a further 2,465 skins from the country. 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 and 275 in 2012. All were reported to be wild-sourced.

All other crocodylian species

There have been no reported commercial exports from range States between 2003 and 2012 of skins of the following taxa: *Crocodylus cataphractus*, *C. intermedius*, *C. palustris*, *C. rhombifer*, *C. siamensis-porosus* hybrid, *Alligator sinensis*, *Osteolaemus tetraspis*, *Paleosuchus palpebrosus*, *P. trigonatus*, *Gavialis gangeticus* or *Tomistoma schlegelii*.

Trade in live animals

The commercial export of live crocodylians 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 crocodylian farming industry means that such threats are likely to continue and should be guarded against.

Live crocodylians 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 France and two to Spain in 2010, all reportedly wild-sourced; while source 'F' animals were reportedly exported to Spain in 2011 (two animals) and 2012 (six animals), and to the Czech Republic in 2012 (one animal). The majority of this trade was reported as purpose 'T'.

Alligator sinensis

In 2010 China exported 10 animals to Japan, recorded as purpose 'T'. 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 2010-2012 were captive-bred or captive-born (sources 'C' and 'F') and traded for commercial purposes, breeding or zoos.

Caiman crocodylus

Guyana: Guyana reported exports of 2,498 animals in 2010, 2,648 in 2011 and 1,335 in 2012. All were wild-sourced; the majority were traded for commercial purposes and destined for the Netherlands, the Russian Federation, Spain and Taiwan, Province of China.

Suriname: This country regularly exports small numbers of wild-caught animals for the pet industry (purpose 'T'); between 2010 and 2012, a total of 187 animals were exported from Suriname. The principal importers were the Netherlands, the Republic of Korea and 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 2010-2012.

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 2010 and 2012.

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 359 animals in 2010, 408 in 2011 and 508 in 2012. It should be noted that although the annual reports cover the period January to December, the quota year 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 450, 344 and 463 animals exported in 2010, 2011 and 2012, respectively. The majority were reported as purpose 'T', the main importing country being the United States.

Crocodylus acutus

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 in 2011 or 2012.

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 2010-2012.

Crocodylus moreletii

In 2012, Mexico reported the export of 180 captive-bred animals to the United States, which reported the import of 30 animals; both countries reported the trade as purpose 'T'.

Crocodylus niloticus

Mozambique has been exporting hatchlings and juveniles to South Africa since the late 1980s, and more recently to Zimbabwe. In 2010 Mozambique reported exporting 4,000 animals to South Africa and 25,130 to Zimbabwe. The following year, reported trade in live animals from Mozambique included 3,000 animals to Malawi, 7,000 to South Africa (which reported importing 16,000) but only 30 to Zimbabwe. The 2012 annual report from Mozambique shows little trade in live animals (a total of nine), whereas South Africa and Zimbabwe reported imports of 4,000 and 2,500 animals, respectively. The majority of the trade 2010-2012 was in ranched animals and for purpose 'T'.

Crocodylus palustris

No live trade was reported in 2010 or 2012; in 2011, the Czech Republic reported importing two captive-bred animals from India for zoos.

Crocodylus porosus

In 2010, 87 captive-bred animals were exported, the majority from Malaysia. In 2011, Thailand reported exporting 20 captive-bred animals to Iran, while in 2012, Malaysia reported exporting ten animals and Thailand reported exports of seven individuals. All reported exports 2010-2012 were captive-bred and for purpose 'T'.

Crocodylus rhombifer

Cuba reported exporting four captive-bred animals to Serbia in 2010 and a further four to Suriname in 2011 for zoos.

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 9, China has imported around 434,000 live specimens from these countries in the ten-year period 2003 to 2012, 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, 14,608 and 335 captive-bred live animals were exported from Cambodia, Thailand and Viet Nam, respectively, to countries other than China over the period 2003-2012. 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 seven farms registered with the CITES Secretariat.

Table 9. Direct, commercial exports of live *Crocodylus siamensis* to China reported by the exporting countries, 2003-2012

Exporter	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Cambodia	0	5,000	0	0	0	1,500	1,400	0	0	0
Thailand	17,300	30,250	23,696	58,793	47,180	23,600	16,600	50,200	10,500	330
Viet Nam	7,700	3,200	9,300	13,000	24,050	41,400	11,137	10,600	12,000	15,000
Total	25,000	38,450	32,996	71,793	71,230	66,500	29,137	60,800	22,500	15,330

26 Trade in other by-products

Meat

Total global commercial exports of crocodilian meat, as reported in CITES annual reports from 2003 to 2012, are provided in Figure 7. 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 since then, reaching approximately 712 t in 2012.

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 2010–2012 were Canada and Hong Kong.

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 have subsequently recovered and were around 250 t in both 2011 and 2012. 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 2010–2012 were Europe, Hong Kong and China.

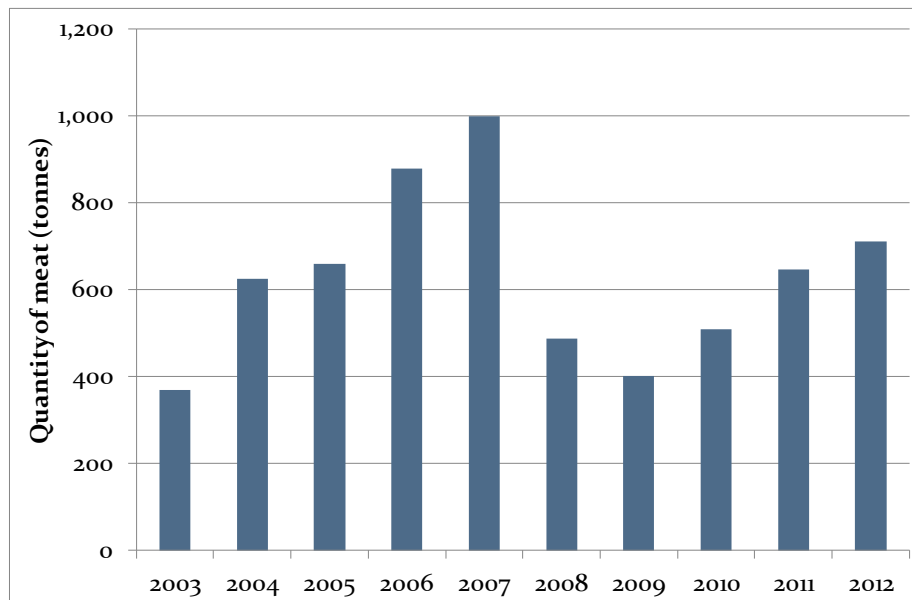


Figure 7. Direct, commercial global exports of crocodilian meat, 2003–2012

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 4,100 kg in 2010, 5,050 kg in 2011 and 9,000 kg in 2012, while exports of *C. novaeguineae* comprised a total of 1,067 kg in these years.

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. The main destinations for Australia's production 2010-2012 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 crocodylian 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 2009-2012 to over 350 t. The Thailand annual reports describe the product as both 'meat' and 'meat and bone'; the main importers 2010-2012 were China, Hong Kong, 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 and a further 200 kg to Germany in 2012.

Figure 8 shows the trends in global exports of meat from the three main species in trade between 2003 and 2012.

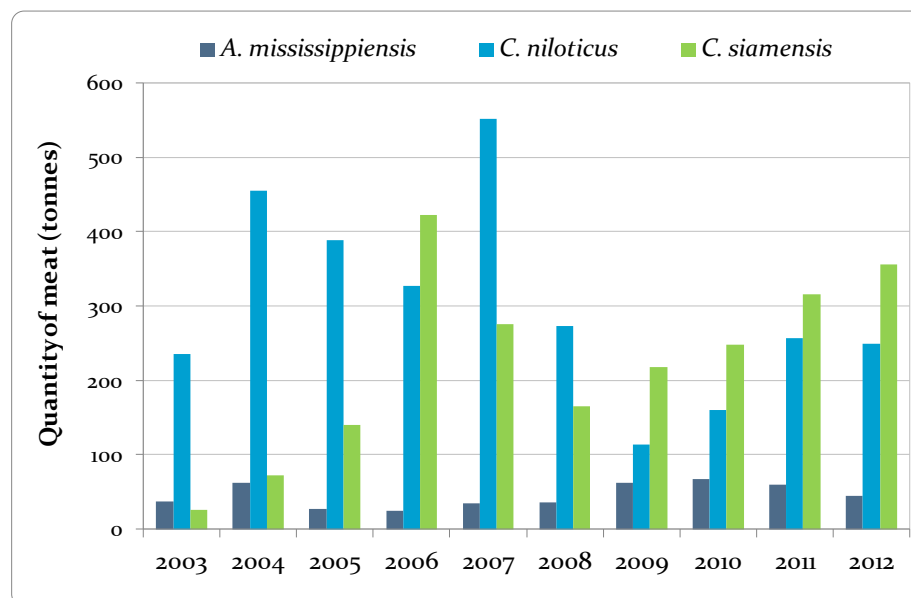


Figure 8. Direct, commercial global exports of *Alligator mississippiensis*, *Crocodylus niloticus* and *C. siamensis* meat, 2003-2012

Teeth

Australia is the world's foremost importer of crocodile teeth; between 2010 and 2012, exports from Papua New Guinea and Singapore to the country together amounted to 156,000 teeth and almost 12 t of teeth. The teeth were obtained from *Crocodylus porosus*, mostly from captive-breeding operations, although over 30,000 of the teeth exported by Papua New Guinea in 2010 were from wild specimens.

28 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 10. Although the value of the original exports fluctuates from year to year, the value of the re-imports has been consistently higher.

Table 10. Reported US dollar value of *Alligator mississippiensis* skins (per skin) exported and re-imported by the United States, 2003-2012

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Exports by USA	106.4	112.5	142.6	177.9	232.9	242.2	193.3	136.0	167.5	194.9
Re-imports by USA	124.6	144.9	168.3	193.5	253.4	254.8	394.7	236.9	245.7	260.1

Source: United States annual reports to CITES

Table 11 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. A slight decrease in 2010 was followed by a further increase to US\$73.4 per skin in 2011 and US\$76.6 in 2012, 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 11. Reported US dollar value of *Caiman crocodilus fuscus* skins (per skin) originating in Colombia and imported by the United States, 2003-2012

(Re-)Exporter	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Colombia	49.9	46.8	50.6	50.8	54.4	52.5	72.2	65.3	73.4	76.6
European Union	-	-	28.0	34.5	-	-	87.3	54.9	71.0	99.9
Mexico	38.0	-	97.8	31.2	50.0	36.3	38.0	34.5	33.0	34.0
Panama	54.4	-	-	-	-	-	-	-	-	-
Singapore	47.8	43.4	43.1	46.7	46.1	44.3	47.3	50.5	46.2	58.1
Switzerland	-	29.5	33.9	41.3	28.5	-	33.0	-	-	-
Thailand	32.6	54.0	53.8	62.0	63.0	-	31.3	-	-	-

Source: United States annual reports to CITES

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 2010-2012, in 2010 Thailand reported the seizure of 300 *Crocodylus porosus* skins from Japan that had originated in Papua New Guinea and 800 *Caiman crocodilus fuscus* skins from Colombia, while the United States seized 337 caiman skins from Colombia, 3,493 skins from Italy (originating in Colombia and Venezuela), and 48 skins from Mexico (originating in Colombia). 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'.

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.

30 Acknowledgements

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Annex: Purpose and source codes 31

Table 12. 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 13. 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 ¹
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.