

WORLD TRADE IN CROCODILIAN SKINS 2008-2010

**Prepared as part of the International
Alligator and Crocodile Trade Study**

by

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Introduction

This report, the nineteenth 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 2008 to 2010. It also attempts to identify problem areas and to recommend, where possible, workable solutions. The data used have been obtained from the CITES Trade Database that UNEP-WCMC maintains on behalf of the CITES Secretariat, with additional information provided by the Crocodile Farmers Association of Zimbabwe and the Ethiopian Wildlife Conservation Organisation.

As in previous IACTS reports, this report presents an overview of global trade levels in classic skins (alligators and true crocodiles) and caimans, a detailed species-by-species analysis of the trade in skins and also trade in other products such as live animals and meat. All species within the family Crocodylia are listed in either Appendix I or II of CITES. Of those species specifically mentioned in this report, the following are listed in Appendix I: *Crocodylus 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 2010 and, if applicable, 2011. A list of annual reports for 2008-2010 that had been received by the CITES Secretariat at the time of writing (September 2012) is provided (Table 1).

All direct trade in whole skins and sides of crocodylian species has been analysed, with two sides being considered to be equivalent to one skin. Trade in skins reported in units of weight, area, length or sub-units, such as 'tails', has been excluded. Wherever possible, data reported by the producer countries have been used in preference to that reported by importing countries because the time lag between export and import, may lead to double-counting and thus an overestimation of trade volume. However, where producer countries have failed to submit annual report data on exports of crocodylians, importers' data have been used. Many of the transactions have been analysed at the export permit level. As with previous reports that covered the years 1995-2009, re-export trade has not been included in the estimation of annual production.

The report discusses the species in taxonomic order. The figures and tables contain information on trade from all sources, including captive-bred, ranched and wild specimens, unless otherwise specified.

Limitations of data

Incomplete data due to late submission 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. CoP14)). Despite these efforts, some Parties fail to submit annual reports on a regular basis.

According to Resolution Conf. 11.17 (Rev. CoP14), annual reports for trade in 2010 should have been submitted by 31 October 2011. However, at the time of writing (September 2012) several reports that might contain important crocodylian data have still not been received by the CITES Secretariat. These include Bolivia (2008 and 2009), Cambodia (2009 and 2010), Ethiopia (2008 and 2009), Guyana (2009), Malawi (2010), Nicaragua (2010) and Panama (2009).

Table 1. CITES annual reports for 2008-2010 available for analysis as of 2 September 2012

Country	2008	2009	2010	Country	2008	2009	2010
Afghanistan	✓	-	-	Cape Verde	✓	✓	✓
Albania	✓	-	-	Central African Republic	-	✓	✓
Algeria	✓	✓	✓	Chad	✓	-	-
Antigua and Barbuda	✓	✓	✓	Chile	✓	✓	✓
Argentina	✓	✓	✓	China	✓	✓	✓
Armenia	-	-	✓	Colombia	✓	✓	✓
Australia	✓	✓	✓	Comoros	✓	✓	-
Austria	✓	✓	✓	Congo	✓	✓	✓
Azerbaijan	-	-	✓	Costa Rica	✓	✓	✓
Bahamas	✓	✓	-	Côte d'Ivoire	✓	✓	-
Bangladesh	✓	✓	✓	Croatia	✓	✓	✓
Barbados	✓	✓	-	Cuba	✓	✓	✓
Belarus	✓	✓	✓	Cyprus	✓	✓	✓
Belgium	✓	✓	✓	Czech Republic	✓	✓	✓
Belize	✓	✓	-	Democratic Republic of the Congo	✓	✓	-
Benin	✓	✓	✓	Denmark	✓	✓	✓
Bhutan	✓	✓	✓	Djibouti	✓	-	-
Bolivia	-	-	✓	Dominica	✓	-	-
Bosnia and Herzegovina	-	-	-	Dominican Republic	✓	✓	✓
Botswana	✓	✓	✓	Ecuador	✓	✓	✓
Brazil	✓	✓	✓	Egypt	-	✓	✓
Brunei Darussalam	✓	-	-	El Salvador	-	✓	✓
Bulgaria	✓	✓	✓	Equatorial Guinea	✓	-	-
Burkina Faso	✓	✓	✓	Eritrea	✓	-	-
Burundi	✓	-	-	Estonia	✓	✓	✓
Cambodia	✓	-	-	Ethiopia	-	-	✓
Cameroon	-	✓	-	Fiji	✓	✓	✓
Canada	✓	✓	-				

Country	2008	2009	2010
Finland	✓	✓	✓
France	✓	✓	✓
French Guiana	✓	✓	✓
French Polynesia	✓	✓	✓
Gabon	✓	✓	✓
Gambia	✓	✓	-
Georgia	✓	✓	✓
Germany	✓	✓	✓
Ghana	✓	✓	✓
Greece	✓	✓	✓
Greenland	✓	-	✓
Grenada	✓	-	-
Guadeloupe	✓	✓	✓
Guatemala	✓	✓	✓
Guinea	✓	-	✓
Guinea Bissau	-	-	-
Guyana	✓	-	✓
Honduras	✓	✓	✓
Hong Kong, SAR	✓	✓	✓
Hungary	✓	✓	✓
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	✓	✓	✓
Mali	✓	✓	✓
Malta	✓	✓	✓

Country	2008	2009	2010
Martinique	✓	✓	✓
Mauritania	✓	✓	-
Mauritius	✓	✓	-
Mexico	✓	✓	✓
Moldova	✓	✓	✓
Monaco	-	-	✓
Mongolia	✓	✓	✓
Montenegro	✓	✓	✓
Morocco	✓	✓	✓
Mozambique	✓	✓	✓
Myanmar	-	-	✓
Namibia	✓	✓	✓
Nepal	-	-	-
Netherlands	✓	✓	✓
New Caledonia	✓	✓	✓
New Zealand	✓	✓	✓
Nicaragua	✓	✓	-
Niger	✓	✓	✓
Nigeria	✓	✓	-
Norway	✓	✓	✓
Oman	-	-	✓
Pakistan	✓	-	-
Palau	✓	-	-
Panama	✓	-	✓
Papua New Guinea	✓	✓	✓
Paraguay	-	✓	✓
Peru	✓	✓	✓
Philippines	-	✓	-
Poland	✓	✓	✓
Portugal	✓	✓	✓
Qatar	✓	✓	✓
Republic of Korea	✓	-	✓
Reunion	✓	✓	✓
Romania	✓	✓	✓
Russian Federation	✓	✓	✓
Rwanda	✓	✓	✓
Saint Kitts and Nevis	✓	✓	✓
Saint Lucia	✓	-	-
Samoa	✓	✓	-
San Marino	✓	✓	✓
Sao Tome and Principe	✓	✓	✓
Saudi Arabia	✓	✓	-
Senegal	✓	✓	✓
Serbia	✓	✓	✓
Seychelles	✓	✓	-
Sierra Leone	-	-	-
Singapore	✓	✓	✓
Slovakia	✓	✓	✓
Slovenia	✓	✓	✓

Country	2008	2009	2010
Solomon Islands	-	-	-
Somalia	-	-	-
South Africa	✓	✓	✓
Spain	✓	✓	✓
Sri Lanka	-	✓	-
Sudan	-	-	✓
Suriname	✓	✓	✓
Swaziland	✓	✓	✓
Sweden	✓	✓	✓
Switzerland	✓	✓	✓
Syria	-	-	-
Thailand	✓	✓	✓
Togo	-	-	-
Trinidad and Tobago	✓	✓	✓
Tunisia	✓	✓	-
Turkey	✓	✓	✓
Turks and Caicos (non-Party)	✓	✓	✓

Country	2008	2009	2010
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 and cross-referencing of importer data was needed to ensure accuracy of analysis. 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. Care has been taken to reduce this source of error to a minimum by closely cross matching the import data with the original export permit information and the results are discussed in the various species accounts.

In recent years, the majority of countries trading in crocodylian skins have reported on a shipment-by-shipment basis, and many importers' reports include the exporters' permit numbers. This allows for cross-checking of data and enables potential reporting or typographical errors to be traced. This type of checking is particularly 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. Despite frequent reminders from the CITES Secretariat, 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 some of the producer countries continues to be a hindrance to timely analysis of the trade.

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 2001 to 2010, with an average of 1,300,000 skins exported annually (Table 2; Figure 1). The data provided are based, wherever possible, on country of export data and are taken from the 'Species Accounts' that follow. There are slight uncertainties regarding figures for the overall totals because of the lack of annual report data from certain key countries mentioned above. However, it is hoped that the estimates made using import country data are sufficient to indicate close approximations to actual exports.

Overall the total number of skins entering international trade in 2010 was approximately 1.35 million, a notable increase compared to the low point reached the previous year. Trade in skins of American alligator from the United States of America (hereafter referred to as the United States), Nile crocodile from South Africa and Zimbabwe, and Brown caiman from Colombia all increased in 2010 compared to 2009, while Yacare exports from Bolivia and Brazil seem to have declined, as do caiman exports from the Bolivarian Republic of Venezuela (hereafter referred to as Venezuela).

The species composition of the trade in skins varied over the ten year period 2001-2010. 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 exports of *Crocodylus acutus* appear to have declined remarkably while *Caiman latirostris* trade is steady. The first exports in recent years of wild *Caiman crocodilus crocodilus* skins from Guyana occurred in 2001 and continued through 2010, while 2005 saw the first exports of ranched *Caiman yacare* from Argentina.

The steady increase in exports of *Alligator mississippiensis* from the United States between 2002 and 2006 was not sustained in the following two years, with exports falling by over 40 per cent over this period. The reasons for this decline are unclear, but there may have been decreased nesting in 2006 as a result of two major hurricanes in 2005 that were followed by a drought, trapping highly saline waters across most of coastal Louisiana (Don Ashley *pers. comm.*). The general global financial crisis may also have been a factor.

Exports of *Crocodylus niloticus* appear to have remained steady at between 140,000 and 170,000 skins per year since 2000 with South Africa, Zambia and Zimbabwe being the main suppliers. The political unrest in Zimbabwe has no doubt had an effect on the crocodile farming industry in that country but production seems to be increasing; indeed, continent-wide, production is up in several countries. *Crocodylus novaeguineae* production appears to have been fairly stable

from 2007 to 2010 while there has been an increase in trade in *C. porosus*, perhaps suggesting a change in market preference. Thailand's exports of *C. siamensis*, which ranged between 1,679 and 5,459 from the mid-1990s to 2002, have since shown a steady increase to over 39,000 in 2008; Viet Nam also exported significant numbers of skins of this species between 2005 and 2008. Both countries reported notably fewer exports in 2009 compared with the quantities reported in 2008, but in 2010 Thailand's exports increased while Viet Nam's declined further.

Trade in caiman skins peaked in 2000 at almost 900,000 skins, but then fell by 30 per cent between 2001 and 2002. A slight recovery was seen in the three years that followed, particularly as a result of increased exports from Bolivia and Venezuela. In 2006 Colombia alone exported nearly a million skins, an increase of 40 per cent over the previous year. The trade in 2007 and 2008 showed a return to the levels seen in the previous five years, fell again in 2009, but recovered in 2010.

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

Table 2. Reported global exports of crocodilian skins from the main taxa, 2001-2010

Species	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<i>Alligator mississippiensis</i>	343,116	237,840	341,734	368,409	356,393	421,220	262,133	230,464	297,187	369,731
<i>Crocodylus acutus</i>	100	630	830	227	204	120	404	1,371	1,460	200
<i>Crocodylus johnsoni</i>	0	2	0	0	65	0	0	0	0	0
<i>Crocodylus moreletii</i>	2,430	1,591	997	549	855	158	11	724	485	0
<i>Crocodylus niloticus</i>	150,757	159,970	148,553	140,497	151,491	166,307	161,185	168,764	149,082	161,840
<i>Crocodylus novaeguineae</i>	30,634	30,749	27,308	39,796	32,002	38,645	28,663	27,543	26,095	25,055
<i>Crocodylus porosus</i>	28,223	24,278	26,564	30,728	37,441	34,152	45,215	53,918	47,575	53,470
<i>Crocodylus siamensis</i>	4,422	3,580	10,982	20,930	31,517	47,972	54,331	63,471	34,373	33,094
Subtotal of 'classic' skins	559,682	458,640	556,968	601,136	578,451	708,574	551,942	546,255	556,257	643,390
<i>Caiman crocodilus crocodilus</i>	*25,510	22,709	34,636	70,722	65,078	69,574	44,894	36,989	43,638	24,643
<i>Caiman crocodilus fuscus</i>	710,113	552,077	572,059	621,691	603,223	972,941	670,828	533,549	408,754	651,121

Species	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<i>Caiman latirostris</i>	88	90	165	215	2,752	1,669	1,125	809	394	1,933
<i>Caiman yacare</i>	32,128	78,811	60,288	41,882	53,241	52,998	65,452	61,297	47,208	24,546
Subtotal of caiman skins	767,839	653,687	667,148	734,510	724,924	1,097,182	782,299	632,644	499,994	702,243
Grand total	1,327,521	1,112,327	1,224,116	1,335,646	1,303,375	1,805,756	1,334,241	1,178,899	1,056,251	1,345,633

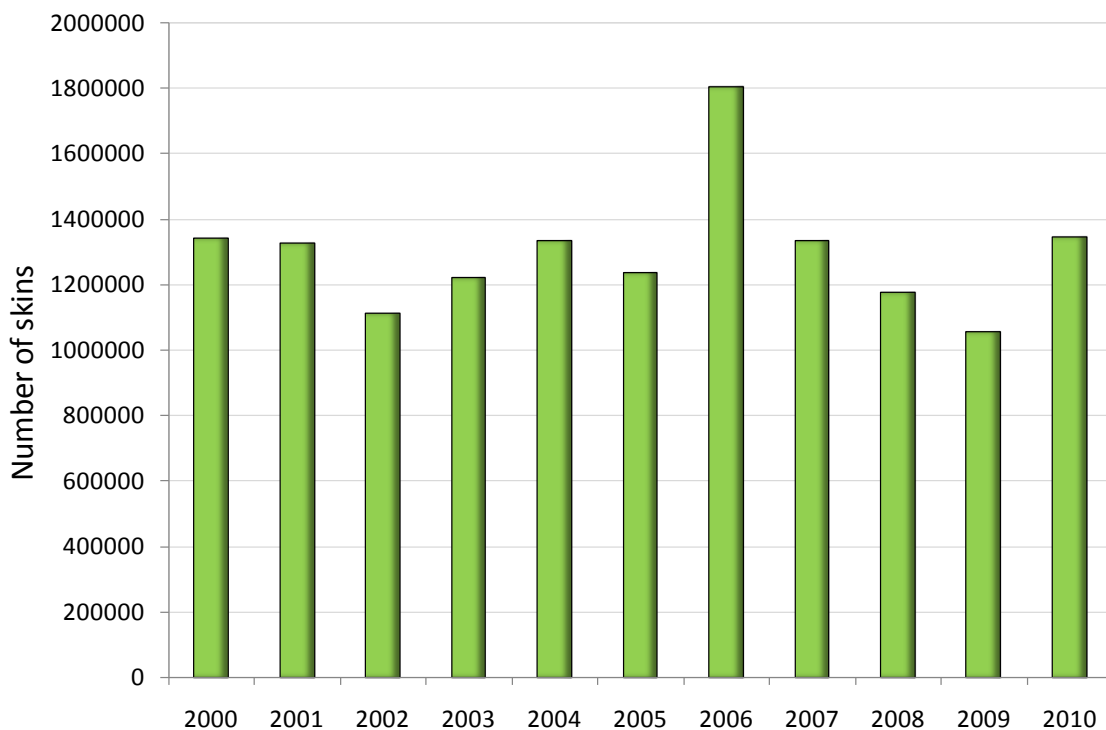


Figure 1. Global exports of crocodilian skins, 2001-2010

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 ever since, rising to 410 in 2009 before falling back to 200 in 2010. Almost all of the skins exported by Colombia between 2007 and 2009 were imported by Italy while those exported in 2010 were imported by France.

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 (total 1,090) were exported in 2009. However no exports were reported for 2010, and preliminary data for 2011 indicate that only 200 skins were

exported in that year. Panama has been the main importer, although in 2009, 150 skins were exported to El Salvador.

Crocodylus johnstoni Australian freshwater crocodile

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

Crocodylus moreletii Morelet's Crocodile

Mexico has 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 per annum from 2003 onwards (Figure 2). In 2008, Mexico reported exporting 704 skins, the majority to the Republic of Korea, and in 2009 485 skins were reported exported, mostly to Japan. No exports were reported in 2010, and the population in Mexico was listed in CITES Appendix II on 23 June 2010 with a zero quota for wild specimens traded for commercial purposes.

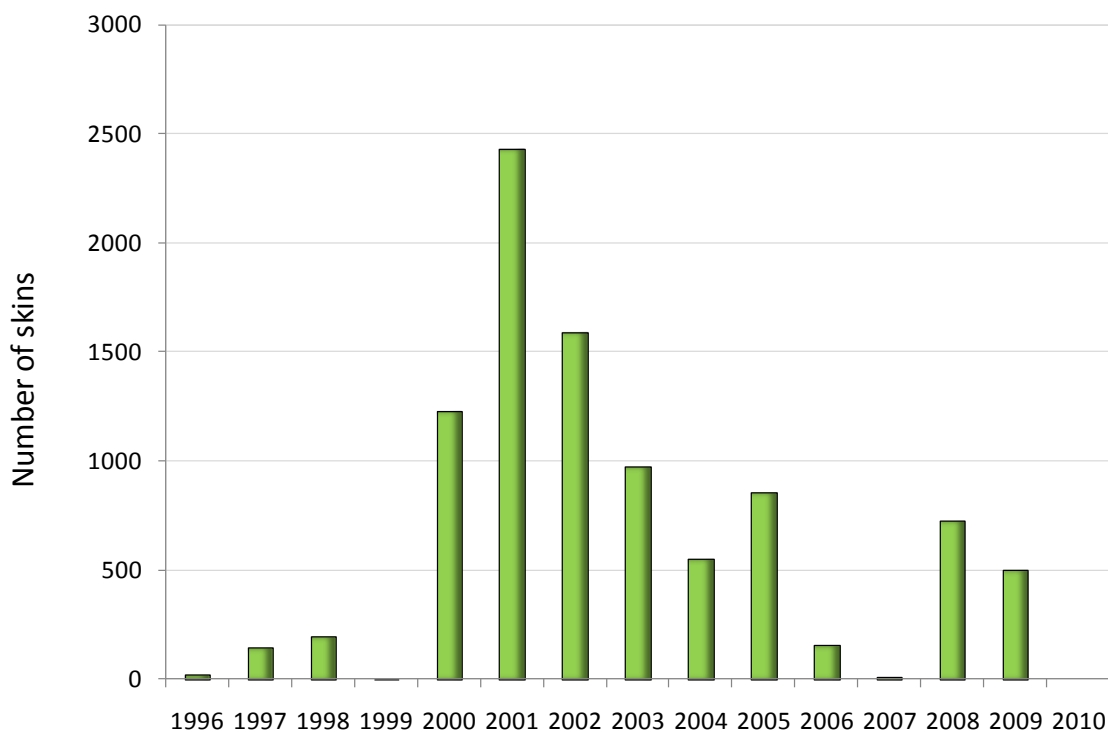


Figure 2. Exports of *Crocodylus moreletii* skins as reported by Mexico, 1996–2010

Crocodylus niloticus Nile crocodile

Over the period 2003-2010, an average of 156,000 *Crocodylus niloticus* skins were exported globally (Table 3). The section that follows summarises information on exports by range States

and other notable exporters. 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, Zambia and Zimbabwe, which are included in Appendix II.

Table 3. Reported exports of *Crocodylus niloticus* skins, 2003-2010

Country	2003	2004	2005	2006	2007	2008	2009	2010
Botswana	0	0	0	0	*320	*374	*1,626	*1,500
Brazil	1	44	0	0	0	0	0	0
Ethiopia	◊900	◊300	◊347	◊727	*594	◊492	0	4
Israel	0	0	0	0	0	0	*2	0
Kenya	*1,687	2,850	9,550	8,710	6,354	4,504	4,283	4,309
Madagascar	7,300	4,760	4,850	6,660	5,500	2,640	2,450	0
Malawi	301	*100	*1,038	698	*1,350	3,370	2,603	*500
Mali	0	0	0	0	0	107	0	0
Mauritius	118	400	150	184	231	189	100	0
Mozambique	3,160	0	1,156	2,000	179	566	0	2,449
Namibia	0	0	400	305	0	0	600	2
South Africa	31,321	35,760	35,486	34,203	36,014	44,697	25,050	47,267
Uganda	600	600	*600	*300	0	*290	0	*500
U.R.Tanzania	*1,439	*1,067	*1,584	*1,100	*1,556	*1,784	1,365	601
Zambia	28,019	26,353	*33,184	*42,266	*44,597	28,197	43,655	23,717
Zimbabwe	70,378 ◆73,707	60,185 ◆68,263	70,416 ◆63,146	80,873 ◆71,616	54,810 ◆64,490	59,509 ◆81,554	939 ◆67,350	30,285 ◆80,995
Total	148,553	140,497	151,491	168,769	161,185	168,764	149,082	161,840

Key: * Figure derived partly or in full from import data; ◆ Data supplied by CFAZ (the Crocodile Farmers Association of Zimbabwe); ◊ Data supplied from EWCO (the Ethiopian Wildlife Conservation Organisation)

1. Exports by range States

Botswana: No commercial exports of skins were reported by Botswana between 1997 and 2009. 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. South Africa appears to be the only country importing skins traded 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 have been reported since 1989.

Ethiopia: The 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 erratic 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 2001 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, but no countries reported importing any skins. Ethiopia's annual report for 2010 recorded the export of four ranched skins.

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

Kenya: Kenya reported exporting 4,504 skins in 2008, 4,281 skins in 2009 and a further 4,309 skins in 2010, all of which went to Singapore. In 2006, the skins were reported to be from captive-bred animals and in 2007 skins were roughly half ranched, half captive-bred; in the three subsequent years, all were reported to be ranched.

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

Madagascar: Madagascar's exports showed an overall decrease from 9,408 skins exported in 2001 to 2,450 skins exported in 2009 (Figure 3), reaching the lowest level since 1995. 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* on 17 June 2010 until further notice (See Notification to the Parties No. 2010/015). No exports of skins were reported in 2010 and the only imports were reported by Japan on export permits issued in 2009.

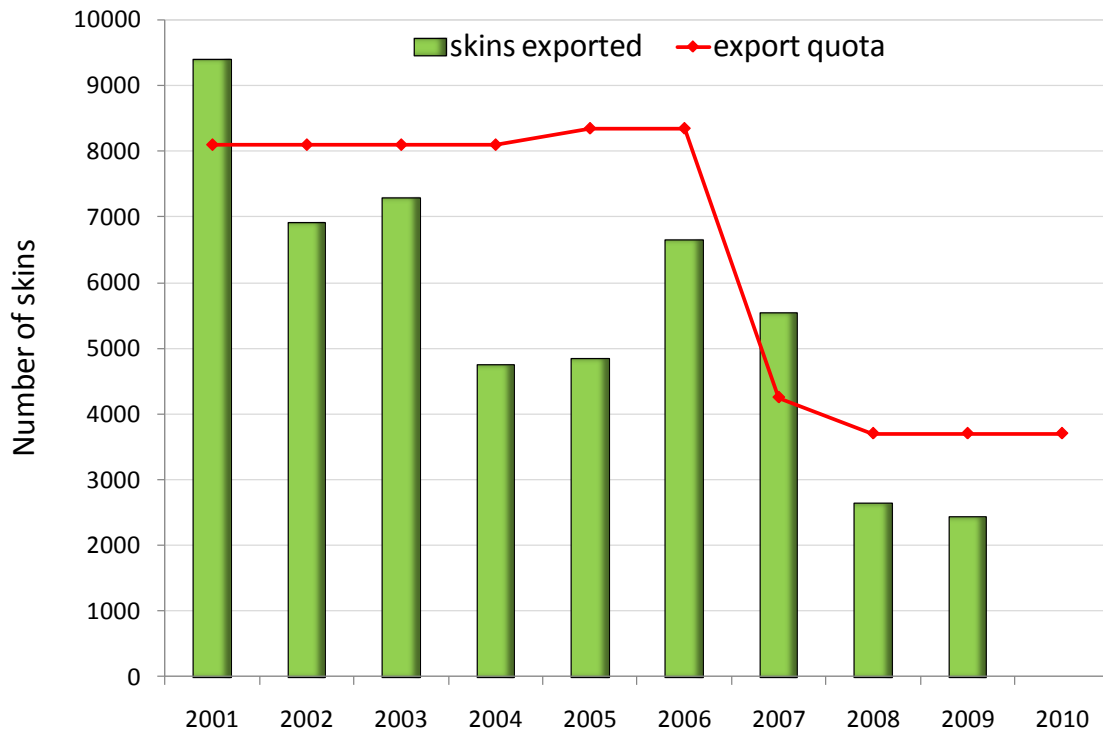


Figure 3. Exports of *Crocodylus niloticus* skins from Madagascar, and CITES export quotas for skins, 2001-2010 (no exports were reported in 2010)

Malawi: A total of 3,370 skins, the majority ranched, were reported exported by Malawi in 2008, 200 of which were from wild-caught animals. The same number of wild-sourced skins were reportedly exported in 2009, although the overall quantity of skins decreased by 23 per cent to 2,603. No annual report has been received from Mali for 2010 and the only import recorded is of 500 skins reported by Germany. The majority of exports between 2007 and 2009 were to Italy.

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. In 2008, Mali reported exports of 107 source 'D' skins to France which confirmed the trade. No exports of skins were reported by Mali in either 2009 or 2010.

Mozambique: In 2008, Mozambique reported exports of 503 skins from wild-caught animals to South Africa and 63 ranched skins to France. These transactions were also confirmed by the importers. No commercial shipments of skins were reported in 2009 but a total of 2,449 skins were exported in 2010. Of these, 403 were wild-caught skins exported to South Africa, with the remainder of ranched origin destined for Mexico and Singapore.

Namibia: No commercial exports of skins were reported by Namibia in 2008, but the following year 600 skins from captive-bred animals were exported to South Africa which confirmed the trade. In 2010 Namibia reported exporting two skins to Hong Kong.

Nigeria: No commercial shipments of skins from Nigeria have been reported since 1983, although seizures of items from tourists returning from that country occur regularly.

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

Somalia: No commercial shipments 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: In 2008, 40,197 skins from animals bred in captivity in South Africa were reported as exports plus another 4,500 skins from captive-bred hatchlings imported from Mozambique. South Africa's annual reports for 2009 and 2010 indicate the commercial export of 25,050 and 47,267 skins, respectively, none of which are reported as originating in Mozambique. However in both years a small proportion of the skins were reported to be from ranched animals and it seems likely that these were from the Mozambique stock as it is believed there are no commercial ranching operations in South Africa.

Sudan: No commercial trade in skins originating in Sudan was reported between 1992 and 2009, however 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. Sudan has no captive breeding operations registered with the CITES Secretariat.

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

Uganda: No exports of crocodile skins were reported by Uganda 2006-2009, and no report has been received for 2010. However, the Republic of Korea reported importing 300 captive-bred skins in 2006, 290 wild-sourced skins in 2008 and a further 500 captive-bred skins in 2010.

United Republic of Tanzania: Tanzania states that their annual report represents actual trade; however, major discrepancies between Tanzania's reports and the data provided by importers indicate that Tanzania may not have included all of their crocodile export data in their annual reports between 2002 and 2008. Therefore, the figures in this report have been taken from the reports of the major importing countries, notably Singapore and Italy for those years (Table 3). According to importer-reported data, skin exports from Tanzania increased from 1,100 in 2006 to 1,784 in 2008, all skins being of wild origin. In 2009, Tanzania reported the commercial export of 1,365 skins, all of wild origin, of which all but one were exported to Singapore. In 2010, Tanzania reported exporting only 601 skins, again all but one to Singapore.

Zambia: All skins exported from Zambia were reported to come from ranching operations. In 2007, Zambia reported exporting 37,305 skins, but France and Singapore reported a further 7,292 skins on permits that were not in Zambia's annual report. Assuming this trade reported

by importers did occur, the probable level of export from Zambia was 44,597 in 2007. This discrepancy did not occur in 2008 or 2009 when Zambia reported exports of 28,197 and 43,655 skins, respectively, mostly to Singapore. In 2010 Zambia reported exporting 23,717 skins, again mostly to Singapore. However, in 2010 Botswana reported re-exporting 36,301 skins of ranched, Zambian origin to Singapore, which do not appear in the reports of either the origin or importing country. It is possible that these skins were actually imported in 2011.

Zimbabwe: In 2008, the Crocodile Farmers Association of Zimbabwe (CFAZ) reported exports of 81,554 skins, compared to 59,509 skins reported by the Management Authority in Zimbabwe’s annual report to CITES. In 2009, the annual report recorded the export of 939 skins, while in 2010 29,156 skins were reportedly exported. The CFAZ data for those years indicate exports of 67,350 and 80,995, respectively. Data from importing countries suggest that the CFAZ data are a more realistic estimate of exports and these figures have been used in estimating exports wherever possible (Table 3). It is known that not all skins exported from Zimbabwe are produced by CFAZ members and therefore these data do not reflect a complete record of Zimbabwe’s skin exports.

2. Other exporting countries

Brazil: No exports 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.

Mauritius: Mauritius reported the direct export of 189 skins in 2008 and 100 skins in 2009, the majority to Zimbabwe. No annual report has been received from Mauritius for 2010 and no imports of skins from that country were recorded.

Crocodylus novaeguineae New Guinea crocodile

Over the ten-year period 2001 to 2010, the total number of skins of this species exported by the main producers, Indonesia and Papua New Guinea, peaked in 2006 but subsequently decreased (Table 4). The recent decrease, however, reflects only the trend in skin exports from Indonesia; trade from Papua New Guinea showed a slight increase between 2007 and 2009.

Table 4. Reported exports of *Crocodylus novaeguineae* skins, 2001-2010

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Indonesia	9,946	11,951	8,826	10,481	13,585	16,575	12,759	10,588	7,255	7,450
PNG	20,688	18,798	18,482	29,315	18,417	22,070	15,904	16,955	18,840	17,605
Total	30,634	30,749	27,308	39,796	32,002	38,645	28,663	27,543	26,095	25,055

Indonesia: Exports have decreased steadily since 2006, while the proportion of wild-sourced skins increased from approximately 70% in 2008 to 98% in 2010. The main importers of *C. novaeguineae* skins were Japan, the Republic of Korea and Singapore.

Papua New Guinea: Exports decreased from over 22,000 skins in 2006 to a low of 15,904 skins in 2007. In the following two years there were slight increases to reach 18,840 skins in 2009, however exports dropped to 17,605 in 2010. The majority of the skins were exported to Japan, with smaller quantities being imported by Australia, France and Singapore. All skins exported by Papua New Guinea since 2001 have been wild-sourced, with the exception of four skins of animals bred in captivity exported in 2004.

Crocodylus porosus Saltwater crocodile

Crocodylus porosus is listed in Appendix I, except for populations of Australia, Indonesia and Papua New Guinea which are listed in Appendix II. The total number of *C. porosus* skins exported by the main producers—Australia, Indonesia, Malaysia, Papua New Guinea, Singapore and Thailand—steadily increased between 2001 and 2008, rising to a total of 53,918 skins in 2008, but decreasing to 45,997 in 2009 (Table 5).

Table 5. Reported exports of *Crocodylus porosus* skins, 2001-2010

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Australia	11,849	*10,423	*14,744	*12,741	*20,409	*16,123	*21,314	28,626	*26,990	30,518
Indonesia	3,456	3,277	2,732	3,968	4,714	3,825	5,151	5,718	5,967	4,302
Malaysia	*675	*662	*618	*1,450	*1,058	*1,684	*1,273	*1,043	*587	*861
Papua New Guinea	10,676	9,332	8,000	11,043	10,222	10,208	12,675	14,074	11,910	16,015
Philippines	0	0	0	0	0	0	0	*20	892	0
Singapore	762	584	470	*693	538	1,712	1,653	1,877	0	*70
Thailand	805	0	0	300	500	600	3,149	2,560	1,229	1,704
Total	28,223	24,278	26,564	30,728	37,441	34,152	45,215	53,918	47,575	53,470

Key: * Figure wholly or partly derived from import 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. Therefore, the data for the years 2002 to 2007 and 2009 provided in Table 5 have been taken from reports of the importing countries less skins imported on export permits issued the previous year. According to the Australian annual report of 2010, exports appear to have increased to over 30,500. Seventy per cent of the exports in 2005 and 2006 were reported to be from captive-bred individuals, with the remainder coming from ranching operations. In the three subsequent years, the proportion of skins reported as ranched increased to around 43 per cent but fell back to 20 per cent in 2010. The destinations of the skins were mainly France, Italy, Japan and Singapore, with smaller quantities going to Indonesia, the Republic of Korea and the United States.

Indonesia: Indonesia's exports showed a relatively steady increase between 2000 and 2009, rising to 5,967 skins in 2009, however exports fell to 4,302 in 2010 (Table 5). The main importers

were Japan and Singapore with lesser quantities going to France and Italy. The reported source of the skins has varied between captive-bred and ranched.

Malaysia: Data from Malaysia come from at least two separate Management Authorities and appear to be poorly correlated. In addition, Singapore, almost the sole importer of crocodylian skins from Malaysia, did not distinguish between belly skins and back straps in earlier years so it is possible that quantities have been overestimated previously. The number of skins reported as imports by Singapore are provided in Table 5 rather than the inconsistent data from Malaysia. On the basis of these data, exports appear to have fluctuated between 600 and 1,700 skins and show no clear trend. There are six CITES-registered captive-breeding operations for this species in Malaysia.

Papua New Guinea: Papua New Guinea's exports rose to 14,074 in 2008 but subsequently decreased to 11,910 in 2009 (Table 5). The increased export in 2008 was the result of reduction of breeding stock on the farms (E. Langelet, *pers comm.*). In 2010 exports increased again to reach a high of 16,015 skins of which nearly 35 per cent were from wild caught animals.

Singapore: Singapore reported commercial exports of 1,683 skins in 2007 and 1,877 in 2008 (Table 5), apparently from registered captive-breeding operations (of which there are two). Most of the skins were exported to France and Italy, with a small number exported to Japan. No exports were reported in 2009 although Australia reported importing 1,000 skins directly from Singapore. Malaysia reported importing 70 skins from Singapore in 2010 but these were not reported by Singapore.

Thailand: Thailand's reported exports of skins fluctuated between 2007 and 2010 with no clear pattern emerging (Table 5); all were from animals bred in captivity. There are 13 CITES-registered captive-breeding operations for this species in Thailand.

***Crocodylus siamensis* Siamese crocodile**

Cambodia: In 2008, Cambodia reported exporting 1,300 captive-bred skins to Thailand. No subsequent annual reports have been received from Cambodia and the only trade recorded by importers subsequently was of 300 skins reported by Thailand in 2009. 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. Reported exports were less than 6,000 skins annually between 1995 and 2002, but then increased steadily from 10,982 in 2003 to 39,109 in 2008. In 2009 the quantity exported decreased to 24,890 skins, but increased to 29,809 skins in 2010 (Figure 4). The main importer was Japan, with smaller quantities exported to Italy and Singapore.

Viet Nam: Since the first reported exports of the species in 2004, exports steadily increased with 16,125 skins exported in 2006, 17,190 in 2007 and 23,062 in 2008; however, exports decreased in both 2009 and 2010 (Figure 4). Japan, Singapore, the Republic of Korea, France and Italy were the main destinations for the skins. Viet Nam has seven captive-breeding operations registered with the CITES Secretariat for this species.

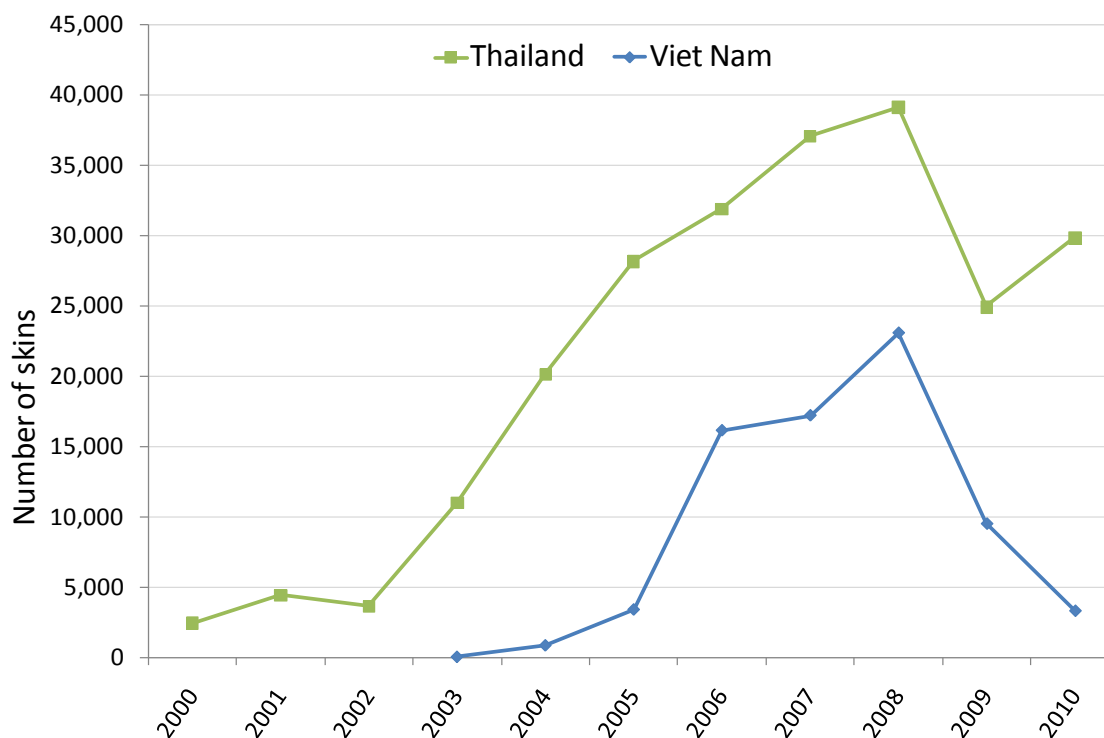


Figure 4. Exports of *Crocodylus siamensis* skins from Thailand and Viet Nam 2001-2010

Alligator mississippiensis American alligator

Reported exports of *A. mississippiensis* from the United States increased from around 31,000 skins in 1986 to 421,220 in 2006. However, exports declined sharply (by 38 per cent) in 2007, and fell further in 2008 (Table 6; Figure 5). The source of this dramatic change is unclear, but it may have been the result of a combination of factors including over supply 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. In 2009, exports rose by almost 30 per cent and increased further in 2010.

Table 6. Exports of *Alligator mississippiensis* skins reported by the United States 1986-2010

1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
31,235	45,177	50,303	76,963	120,419	128,447	155,264	192,286	210,236	185,929	163,936	168,649	206,620
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010			
343,110	237,840	341,734	368,409	356,393	421,220	262,133	230,464	297,187	369,731			

In recent years, four countries, France, Germany, Italy and Singapore, have imported 95 per cent of production; smaller quantities were imported by Mexico and Panama.

It has been noted in recent IACTS reports that the compilers of the CITES annual report of the United States were probably using the code 'C' (bred in captivity) for ranched animals rather than the code 'R' up until 2004. However, in 2005, there appears to have been a change of policy with the source code 'W' being used for ranched animals; 99.5 per cent of the skins for that and subsequent years were reported as source 'W'. This is presumably a result of the decision by the CITES Management Authority that the code 'R' should only be used in the case of crocodylian populations transferred from Appendix I to Appendix II subject to ranching. The United States also uses the source code 'F' - animals born in captivity (F1 or subsequent generations that do not fulfil the definition of 'bred in captivity' in Resolution Conf. 10.16 (Rev.)).

This species is also bred in captivity in Israel, but no skins have been exported from Israel since 2001.

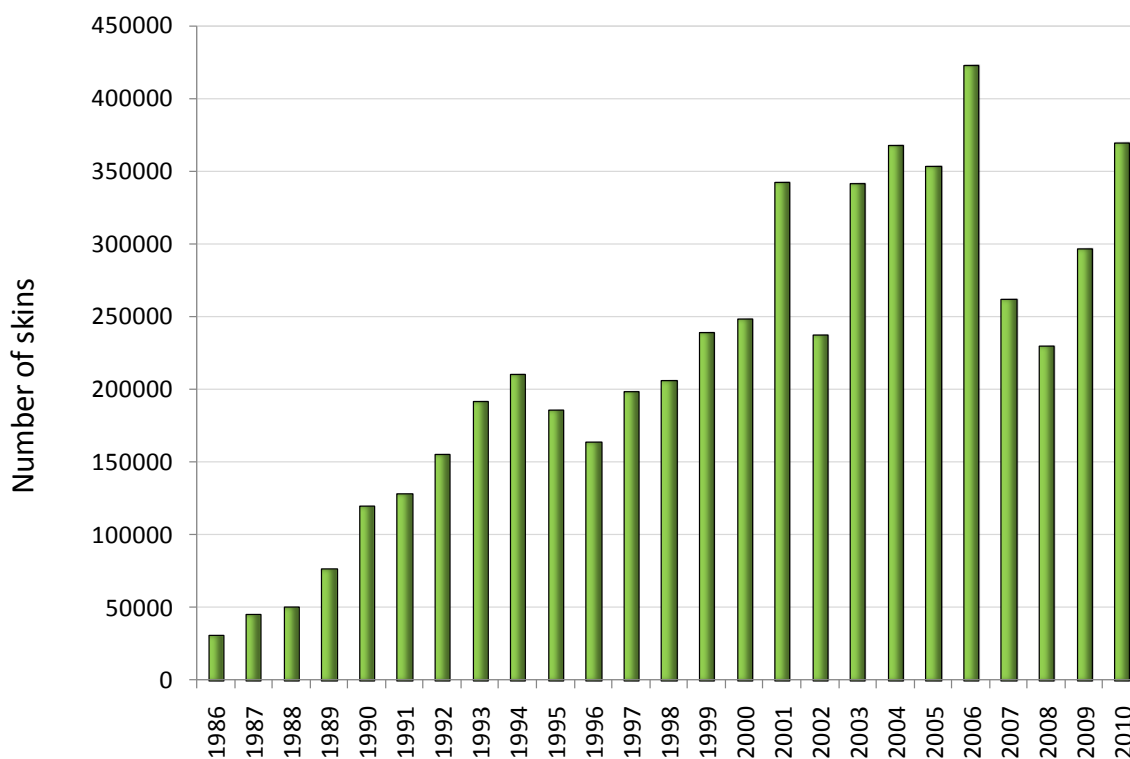


Figure 5. Exports of *A. mississippiensis* skins reported by the United States, 1986-2010

Caiman crocodilus crocodilus Spectacled caiman

Venezuela has traditionally been the main supplier of skins of this species, almost all from wild-collected animals. Historic levels have been recorded in previous IACTS reports. Between 2004 and 2006, Venezuela exported around 60,000 skins annually; however, exports plunged to

less than half that level in 2007 and have decreased each year since until 2010 (Figure 6). Preliminary data for 2011 indicate that exports rose between 2010 and 2011.

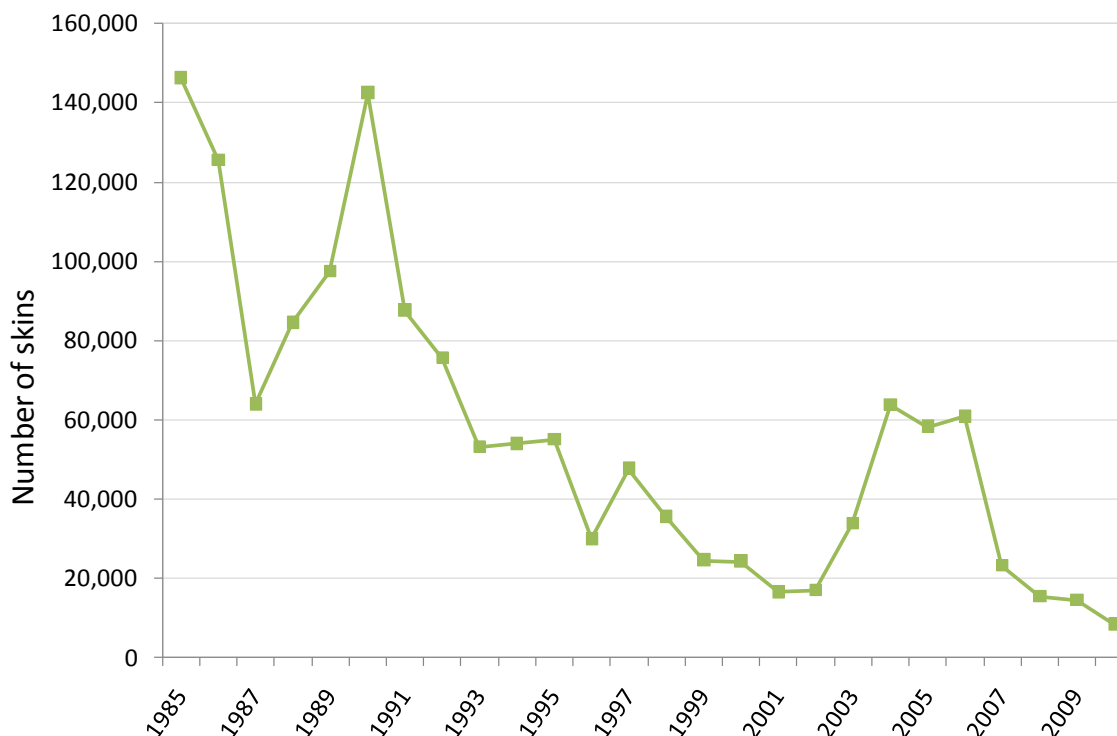


Figure 6. Exports of *Caiman crocodilus crocodilus* skins from Venezuela 1985-2010

While **Guyana** was a major supplier of this species in the late 1980s (with over 320,000 skins reported by importing countries between 1983 and 1989), exports dwindled during the 1990s. Exports during the first half of the 2000s were also relatively low in comparison, but trade has increased in recent years. In 2007, Guyana reported exporting a total of 16,707 skins. In 2008, reported exports amounted to 21,000 skins and, although no report has been received from Guyana for 2009, imports reported by Mexico suggest at least 28,000 wild-caught skins were traded in that year. Guyana reported the export of 16,250 skins in 2010. The majority were exported to Mexico, with smaller quantities going to Panama, the Republic of Korea and Thailand.

Colombia also farms small numbers of *Caiman crocodilus crocodilus* and exports amounted to 4,986 in 2007 and 3,000 in 2008; all were reported to be from animals bred in captivity. No exports were reported in 2009 or 2010.

***Caiman crocodilus fuscus* Brown caiman**

As with *C. crocodilus crocodilus*, the history of the trade in skins of *C. crocodilus fuscus* has been well documented in recent IACTS reports. Levels of trade from countries reportedly exporting this species between 2001 and 2010 are provided in Table 7.

Table 7. Reported exports of *Caiman crocodilus fuscus* skins, 2001-2010

Exporter	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Colombia	698,413	540,579	552,219	605,841	599,527	970,731	668,076	532,394	407,759	647,565
Panama	11,700	11,498	19,840	15,850	*3,696	*2,310	*2,752	*1,155	*995	3,556
Total	710,113	552,077	572,059	621,691	603,223	972,941	670,828	533,549	408,754	651,121

Key: * Figure derived from import data.

Colombia remains the major exporter of this species and exports reported by that country between 2001 and 2010 are provided in Figure 7. Exports have decreased steadily from 970,731 skins in 2006 to 405,386 skins in 2009, the smallest quantity exported since 1992; however exports rose again to 647,565 in 2010. 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 in 2010 the proportion fell to 24 per cent and more of the skins, 32 per cent, went to Mexico. Other major importers include the Republic of Korea, Thailand and the United states.

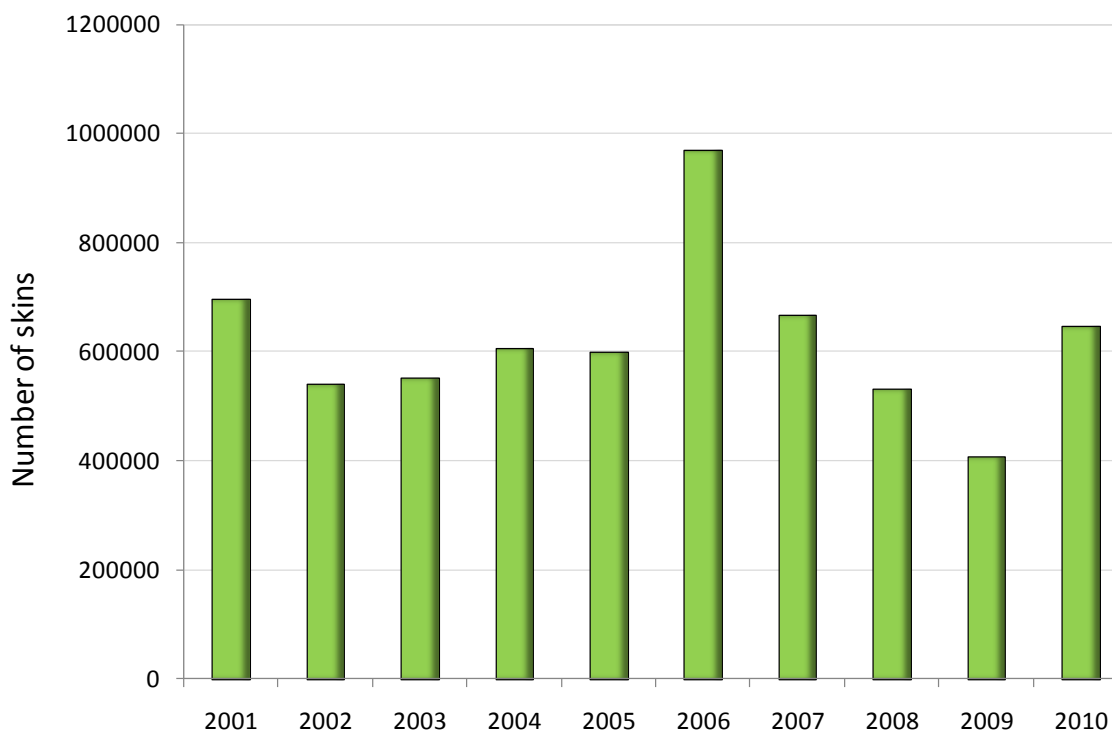


Figure 7. Exports of *Caiman crocodilus fuscus* skins from Colombia, 2001-2010

Other range States: No exports have been reported by Honduras since 1998 or by Nicaragua since 2000. Although an important entrepôt State, Panama 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. Panama’s annual reports for 2005 to 2008 do not appear to be complete when compared to the reports of importing countries, and their report for 2009 has not been received, so the quantities for

those years in Table 7 have been taken from the reports of the importing countries, particularly Italy, Mexico, Singapore and Spain. In 2010 Panama reported exporting 3,556 skins to Mexico from animals bred in captivity.

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 annually to 394 in 2009, but increased again to 1,933 in 2010. All skins were reportedly from ranched animals.

Caiman yacare Yacaré

Exports of *C. yacare* skins from the principal exporter of this species, Bolivia, appear to have decreased notably in 2009 (according to importer-reported data) and again in 2010 according to the Bolivian annual report (Table 8). Captive-bred skins accounted for about 20 per cent of the trade in those two years.

Table 8. Reported exports of *Caiman yacare* skins, 2001-2010

Exporter	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Argentina	0	0	0	1	1,291	2,883	6,083	3,851	10,194	4,391
Bolivia	28,170	63,725	43,028	34,878	51,330	44,443	49,115	*51,618	*27,900	20,064
Brazil	978	6,048	12,851	7,004	*620	*3,173	*10,254	5,828	9,114	*91
Paraguay	2,980	9,038	4,409	0	0	0	0	0	0	0
Total	32,128	78,811	60,288	41,882	53,241	50,499	65,452	61,297	47,208	24,546

Key: * Figure derived from import data

Argentina: Reported exports increased steadily between 2004 and 2009, peaking at 10,194 skins in 2009. Exports then declined to below 5,000 in 2010. The main destination for the skins was the United States. All of the skins were reported to be from ranching operations.

Bolivia: Reported exports increased from 34,878 to 51,618 between 2004 and 2008, then reportedly fell in 2009 according to importer-reported data. Bolivia's annual report for 2010 indicates exports of wild-sourced skins to Europe (Germany, Italy and Spain) and Japan, and captive bred skins to Mexico and the United States with small quantities to Argentina, Colombia and France. Skins from captive-bred animals made up nearly 40 per cent of the total in 2010. Data for 2008 and 2009 come from the importers and may be inflated artificially by skins exported in previous years.

Brazil: Reports from Brazil for 2005 to 2007 do not distinguish adequately between whole skins, skin pieces and manufactured items. Data for these years have therefore been taken from the reports of the importing countries, principally Mexico and the United States (Table 8). Brazil reported exporting 5,828 skins in 2008 and a further 9,064 in 2009. No exports of *Caiman*

yacare were reported by Brazil in 2010 but Turkey reported the import of 91 skins. All skins were from captive-breeding operations.

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. No exports of skins have been reported in trade since.

***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, all of which were wild-sourced. No trade was reported in 2010.

Other Species

There have been no reported commercial exports from range States between 2001 and 2010 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. The effect that these alien animals may have on native populations of crocodylians is inestimable should they establish breeding populations, a serious possibility given suitable environmental conditions and habitat. Indeed Spectacled Caiman, possibly discarded pet animals, can currently be found in Florida and the Everglades National Park. Previous IACTS reports have noted that the continued growth of the crocodylian farming industry would mean that such threats would continue.

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 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, would 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 on a species by species basis.

Alligator mississippiensis

There have been limited exports of live animals from the United States, mostly destined for circuses and zoos. In 2009, Denmark reported importing 30 wild-sourced specimens from the

United States for scientific purposes, but the United States did not confirm the export. In 2010 the United States reported exporting two animals to France and two to Spain, all reportedly wild-sourced.

Alligator sinensis

In 2008, China exported 20 animals to Denmark, 27 to France and 34 to Japan. In 2009, a further 26 were exported to Denmark, 30 to Spain and 10 to Japan, and in 2010 another 10 to Japan. All animals were captive-bred specimens.

Caiman crocodilus

Guyana reported exporting 7,742 animals in 2008, including over 5,000 reportedly exported to China. This trade was not reported by China but it is possible the importer was Taiwan, Province of China, which is not party to CITES. No report was received from Guyana for 2009 but reported imports by Mexico and Netherlands amount to 1,150 animals; in 2010 Guyana reported exports of 2,498 animals, mostly destined for the Netherlands, the Russian Federation, Spain and Taiwan, Province of China. All were wild caught and likely to have been destined for the pet industry.

Suriname regularly exports small numbers of wild-caught animals for the pet industry; between 2006 and 2010, Suriname reported exporting a total of 334 animals.

Venezuela reported exporting 4,650 *Caiman crocodilus crocodilus* in 2006 and 4,500 in 2007. All were reported to be of ranched stock or captive-bred. There have been no subsequent reports of live trade from Venezuela.

Caiman yacare

In 2006, Denmark reported importing eight ranched animals from Argentina, but none have been reported in trade from range States subsequently.

Melanosuchus niger

Denmark reported importing two ranched animals from Ecuador in 2009; no live trade was reported in 2008 or 2010.

Paleosuchus palpebrosus

Guyana has an annual export quota of 500 live, wild-sourced animals and reported exporting 586 animals in 2008. In 2009, importers' data suggest the figure was probably about 487 animals; Guyana has not yet submitted a report for 2009. In 2010, Guyana reported exporting a further 359 animals. They are all likely to be for the pet industry, with the main importing country being the United States. Smaller quantities were exported to Canada, Europe, Japan and the Russian Federation.

Paleosuchus trigonatus

Similar to *P. palpebrosus*, Guyana has an annual export quota of 1,000 live, wild-sourced animals and reported exports of 745 in 2008. Importers' data suggest the figure was only 352 in 2009, and Guyana reports exports of 450 in 2010. As with the previous species, the main importing country was the United States, with smaller quantities going to Canada, Europe, Japan, the Russian Federation and Thailand.

Crocodylus acutus

El Salvador reported seizing three animals in 2009 and two in 2010, while Cuba and Ecuador exported a total of five captive bred individuals for zoo purposes in 2010.

Crocodylus mindorensis

The Philippines reported exporting 10 captive-bred animals to the Czech Republic in 2009 for zoos; the import was confirmed by the Czech Republic.

Crocodylus moreletii

In 2009, Mexico reported the export of 23 animals to Japan. No live exports were reported 2006-2008 or in 2010.

Crocodylus niloticus

South Africa has been the main importer of live specimens of this species, importing from the neighbouring range States of Botswana (until 2002), Kenya (in 2003) and Namibia (up to 2004) but mostly from Mozambique. In the last two years Zimbabwe has become the main importer of hatchlings from Mozambique. Mozambique has been exporting hatchlings and juveniles to South Africa since the late 1980s, and their reported exports increased from 5,600 in 2003 to 91,000 in 2008 (61,000 to South Africa and 30,000 to Zimbabwe). In 2009, however, Mozambique's reported exports fell by 59 per cent to 37,160 (17,160 animals to South Africa and 20,000 to Zimbabwe). The Mozambique 2010 report shows a total of 33,030 live animals exported, 4,000 going to South Africa and 29,030 to Zimbabwe.

Crocodylus palustris

No live trade in this species has been reported since 2005.

Crocodylus porosus

Thailand reported exporting 15 captive-bred animals to France and 10 to South Africa in 2008. The United States reported importing one animal from Australia in 2009. In 2010 Malaysia reported exporting 60 animals to Bangladesh and 10 animals to Iran, all captive-bred.

Crocodylus siamensis

China 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 over 472,000 live specimens from

these countries in the ten-year period 2001 to 2010. Thailand has also exported over 11,000 live animals to Cambodia, Egypt, Hong Kong, Japan, Lao P.D.R., Malaysia, Philippines, the Republic of Korea, South Africa, Sweden, Taiwan, Province of China, and Viet Nam since 2005. As noted in the section on skins, Cambodia has six crocodile farms, Thailand has 23 farms and Viet Nam has seven farms registered with the CITES Secretariat for the commercial production of this species.

Table 9. Exports of live *Crocodylus siamensis* to China, 2001-2010

Exporter	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cambodia	16,572	34,809	640	5,000	0	0	0	1,500	1,600	0
Thailand	13,179	10,898	17,300	30,250	23,696	58,793	47,180	23,600	16,600	50,200
Viet Nam	0	0	7,700	3,200	9,300	13,000	24,050	41,400	11,137	10,600
Total	29,751	45,977	25,640	38,450	32,996	71,793	71,230	66,500	29,337	60,800

Trade in other by-products

a. Meat

Total world exports in crocodilian meat, as reported in CITES annual reports from 2001 to 2010, is provided in Figure 8. Between 1990 and 2002, the amount traded globally fluctuated at around 400 tonnes yearly. Exports began an upward trend in 2003, and in 2006 and 2007 peaked at over 900 t. However, the quantity of meat exported decreased to just under 500 t in 2008 and remained around this level in 2009 and 2010. The only caiman meat being reported in trade for either of those two years was 47 kg of captive-bred Yacare meat reported by Brazil.



Figure 8. Global exports of crocodilian meat, 2001–2010

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 Taiwan, Province of China, Japan, Canada and the United Kingdom. No exports to Taiwan, Province of China, have been reported since 1994 and export levels of this species have fallen since 1995 with the main importers currently being Canada and Hong Kong.

Exports of *Crocodylus niloticus* meat, which originate particularly from South Africa and Zimbabwe, increased steadily from less than two tonnes in 1992 to over 475 t in 2007, but then decreased to less than 300 t in 2008 and to below 200 t in both 2009 and 2010. The main destinations for *C. niloticus* meat were Europe, Hong Kong and China. It appears that all of Zambia's production was exported via South Africa up to 2005; however, in 2006, Zambia began exporting directly to Europe and Hong Kong. In addition, Kenya reported exporting 400 kg to Sudan in 2008.

Exports of meat of both *Crocodylus novaeguineae* and *C. porosus* from Indonesia increased up to 2000; however, since then exports dwindled to around 1,500 kg annually 2005–2007. In 2008, 800 kg were exported from Indonesia but this increased to 3,500 kg in 2009; all exports in these years were reported to be from *C. porosus*. In 2010, Indonesia reported exporting 4,100 kg from *C. porosus* and 567 kg from *C. novaeguineae*. Most of the exports were destined for Hong Kong and Malaysia.

Australia's exports of *Crocodylus porosus* 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 2010. Although it is possible that the quantities in recent Australian annual reports are underestimated, the decrease may indicate that crocodile meat is becoming more popular for local consumption. Apart from occasional exports to Europe and New Zealand, the main destinations for Australia's production have been China, Japan, Malaysia, Hong Kong and Taiwan, Province of China.

Singapore exported small quantities of crocodile meat annually to Hong Kong up to 2005, but none has been reported since then.

In 2008, Australia reported the import of 30 t of *C. porosus* meat originating in Papua New Guinea, but the exporting country was not specified. It seems likely that these were in fact direct imports from Papua New Guinea. The import of another 15 t meat from Papua New Guinea was reported by Australia in 2009; however Australia's annual report for 2010 has not been received and the report from Papua New Guinea only reports trade in crocodile skins..

The biggest change in the crocodylian meat trade in recent years has been the expansion of the trade in *Crocodylus siamensis*. Thailand used to be the only exporter of *C. siamensis* meat and exports averaged about 35 t annually between 1999 and 2003. Exports subsequently increased to almost 400 t in 2006. In 2007, however, reported exports fell to 273 t, and again in 2008 to 159 t. In 2009, reported exports rose again to almost 215 t. The Thailand annual report for 2009 describes the product as both 'meat' and 'meat and bone' and the main importing countries are China, Hong Kong, the Republic of Korea and Taiwan, Province of China. Exports of *C. siamensis* meat from Viet Nam decreased from 5.5 t in 2008 to 123 kg in 2010.

No exports of meat of *Crocodylus moreletii* have been reported since 2003.

Exports of meat from South American caiman have fluctuated considerably over the past ten years; no trade in meat of this genus was reported 2008-2010.

Figure 9 shows the trends in exports of meat from the three main species in trade between 2001 and 2010.

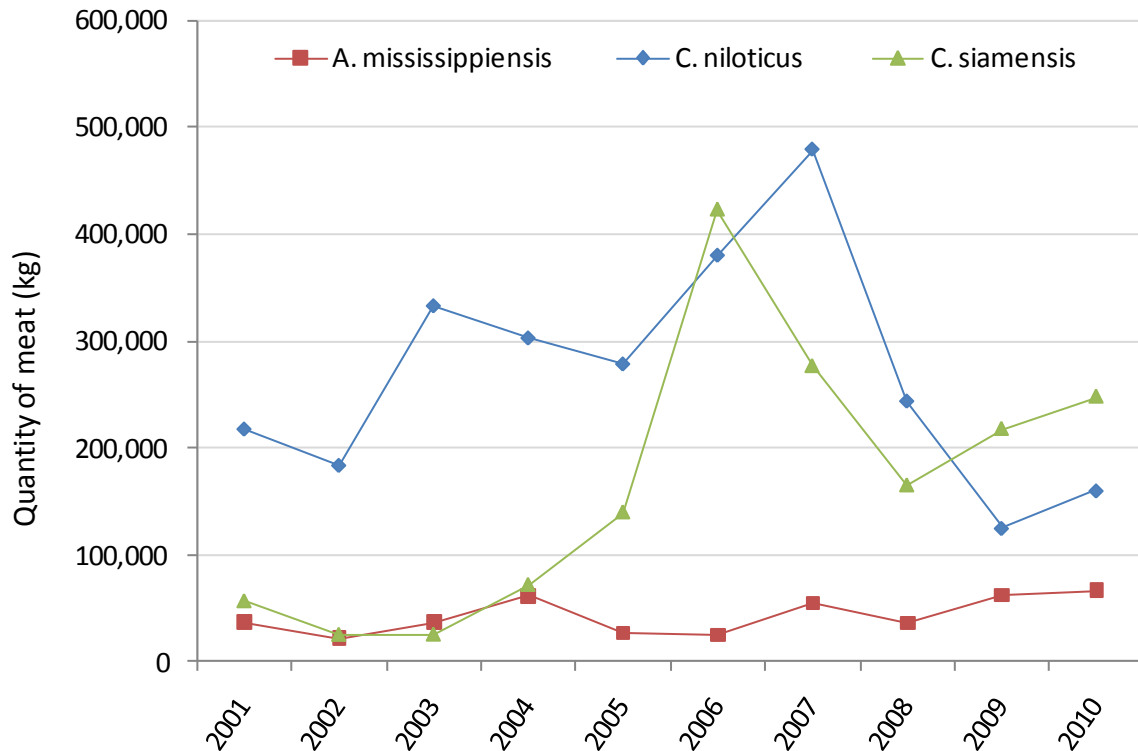


Figure 9. Exports of meat of *Alligator mississippiensis*, *Crocodylus niloticus* and *C. siamensis*, 1986-2010.

b. Teeth

Australia is the world's foremost importer of crocodile teeth and between 1999 and 2010 imported nearly 425,000. Most of the teeth were *Crocodylus porosus* from the operations in Malaysia, Papua New Guinea and Singapore, but Australia also imported *C. siamensis* teeth from Thailand and alligator teeth from the United States. Since 2005 trade has gradually increased and amounted to over 47,000 in 2007. In 2008, imports decreased to 19,105 teeth exported from Singapore and Thailand, and in 2009 decreased further to only 5,000 teeth exported from Singapore. In 2009 Australia reported exporting 24,000 teeth to Indonesia, while Singapore reported exporting 10,000 teeth to Australia in 2010.

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 since 1997. There is great fluctuation amongst the reported values as may be expected and no indication of the size or quality of the skins is provided; indeed, for caiman species flanks may have been reported as whole skins to further complicate the issue. 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* and the reported value of re-imports of these skins from Europe, Mexico and Asia after tanning are

provided in Table 10. Although the original value of exports fluctuates from year to year, the value of the re-imports has been consistently higher, as would be expected.

Table 10. Reported US dollar value of *Alligator mississippiensis* skins (per skin), 2001-2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Exports by USA	100.8	101.4	106.4	112.5	142.6	177.9	232.9	242.2	193.3	136.0
Re-imports by USA	169.5	108.6	124.6	144.9	168.3	193.5	253.4	254.8	394.7	236.9

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 appears to have increased notably in 2009, the highest value recorded over the period 1998-2009. There appears to have been a slight decrease in 2010 in the price for skins exported directly from Colombia and re-exported via Mexico and Europe, while the price of skins re-exported via Singapore has increased slightly.

Table 11. Reported US dollar value of *Caiman crocodilus fuscus* skins originating in Colombia (per skin), 2001-2010

(Re-)Exporter	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Colombia	43.5	50.7	49.9	46.8	50.6	50.8	54.4	52.5	72.2	65.3
European Community	24.7	63.8	-	-	28.0	34.5	-	-	87.3	54.9
Mexico	49.1	41.5	38.0	-	97.8	31.2	50.0	36.3	38.0	34.5
Panama	59.2	-	54.4	-	-	-	-	-	-	-
Singapore	43.8	39.9	47.8	43.4	43.1	46.7	46.1	44.3	47.3	50.5
Switzerland	29.5	25.0	-	29.5	33.9	41.3	28.5	-	33.0	-
Thailand	52.2	56.5	32.6	54.0	53.8	62.0	63.0	-	31.3	-

Reported seizures

Information on seizures is often omitted from CITES annual reports, perhaps because the relevant authorities involved, i.e. the Customs officers making the seizures and the CITES Management Authorities producing the annual reports, seldom liaise closely. 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.

Of the more notable seizures reported in the last three years, the United States reported seizing 1,000 skins directly from Colombia and 4,242 skins via Mexico and Singapore in 2008, while in 2009, the United States reported seizures of 178 *Caiman crocodilus crocodilus* skins from Hong Kong (origin Venezuela), 565 *C. yacare* skins from Argentina and 88 *C. yacare* skins from Bolivia. 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; the United States seized 337 caiman skins from Colombia, 3395 skins from Italy (originating in Colombia and Venezuela), and 40 skins from Mexico (originating in Colombia).

Recommendations

The following recommendations made in previous IACTS reports remain valid:

- ◆ Countries should, where possible, adopt the CITES standard permit number that allow for accurate cross matching of shipments. This format identifies both the exporting country and the year of permit issuance (see CITES Resolution Conf. 12.3 (Rev. CoP15) on Permits and certificates).
- ◆ Standardisation of the terminology used to describe parts of crocodylian 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. There has been considerable improvement in standardisation of terms, but it is still an area that needs improvement.
- ◆ 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 crocodylian material as defined in the *Guidelines for the preparation and submission of CITES annual reports*.
- ◆ Countries with large-scale farming operations should establish strict monitoring and management programmes for their wild crocodylian 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 should contact Parties in June of each year to remind them of their reporting obligations under Article VIII, paragraphs 6 and 7.
- ◆ Wherever possible, Parties report the actual quantities of skins being traded.

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