WORLD TRADE IN CROCODILIAN SKINS 2006-2008

Prepared as part of the International Alligator and Crocodile Trade Study

by

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Introduction

This report, the seventeenth produced by UNEP-WCMC for the International Alligator and Crocodile Trade Study (IACTS), examines the international trade in crocodilian skins from 1980 to 2008. The present report updates the earlier reports by providing additional information for the years 2007 and 2008. It also attempts to identify problem areas and to recommend, where possible, workable solutions. As in previous reports, 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.

As in the IACTS reports covering the years 2001 to 2007, 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 2008 and, if applicable, 2009. A list of annual reports for 2006-2008 that had been received by UNEP-WCMC at the time of writing (June 2010) is provided (Table 1).

All trade in whole skins and sides of crocodilian 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 crocodilians, 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 1995-2007, 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 trade information 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. In the IACTS 2002 report, we drew attention to measures taken by the CITES Standing Committee that resulted in many Parties providing their missing reports. These included reminders being sent by the Secretariat on behalf of the Standing Committee and even suspension of trade should a Party fail, without providing sufficient justification, to submit reports for three consecutive years. The effect initially was a substantial increase in the number of reports submitted, however the situation seems to have deteriorated in recent years.

According to Resolution Conf. 11.17 (Rev. CoP14), annual reports for trade in 2008 should have been submitted by 31 October 2009. However, at the time of writing, several reports that might contain important crocodilian data have still not been received by the CITES Secretariat. These include Bolivia (2008), Brazil (2008), Ethiopia (2008), Papua New Guinea (2008), Namibia (2007), Nicaragua (2008) and United Republic of Tanzania (2007).

Table 1. CITES annual reports for 2006-2008 available for analysis as of 11 June 2010

Country	2006	2007	2008
Afghanistan	✓	✓	✓
Albania	✓	–	–
Algeria	✓	✓	✓
Antigua and Barbuda	✓	–	–
Argentina	✓	✓	–
Aruba	–	✓	✓
Australia	✓	✓	✓
Austria	✓	✓	✓
Azerbaijan	✓	✓	–
Bahamas	✓	✓	✓
Bangladesh	✓	✓	–
Barbados	✓	✓	✓
Belarus	✓	✓	–
Belgium	✓	✓	✓
Belize	✓	–	–
Benin	–	✓	✓
Bhutan	✓	–	–
Bolivia	✓	✓	–
Brazil	✓	✓	–
Bulgaria	✓	✓	✓
Burkina Faso	✓	✓	–
Burundi	✓	✓	✓
Cambodia	✓	✓	✓
Cameroon	✓	–	–
Canada	✓	✓	–
Central African Republic	✓	✓	–
Chile	✓	✓	✓
China	✓	✓	✓

Country	2006	2007	2008
Colombia	✓	✓	✓
Congo	✓	–	–
Costa Rica	✓	✓	–
Croatia	✓	✓	✓
Cuba	✓	✓	✓
Cyprus	✓	✓	✓
Czech Republic	✓	✓	✓
Democratic Republic of the Congo	✓	✓	✓
Denmark	✓	✓	✓
Djibouti	✓	✓	✓
Dominica	✓	✓	✓
Dominican Republic	✓	✓	✓
Ecuador	✓	✓	✓
Egypt	✓	✓	–
Estonia	✓	✓	✓
Ethiopia	✓	✓	–
Fiji	✓	–	–
Finland	✓	✓	✓
France	✓	✓	✓
French Guiana	✓	✓	✓
French Polynesia	✓	✓	✓
Gabon	–	✓	✓
Gambia	✓	✓	✓
Georgia	✓	✓	✓
Germany	✓	✓	✓
Ghana	–	✓	–
Greece	✓	✓	✓

Country	2006	2007	2008
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	✓	✓	✓
Laos	✓	✓	✓
Latvia	✓	✓	✓
Lesotho	✓	✓	✓
Liberia	✓	✓	–
Libyan Arab Jamahiriya	✓	–	–
Liechtenstein	✓	✓	✓
Lithuania	✓	✓	✓
Luxembourg	✓	✓	✓
Macao, SAR	✓	✓	✓
Macedonia	✓	✓	✓
Madagascar	✓	✓	✓
Malawi	✓	✓	✓
Malaysia	✓	✓	✓
Malta	✓	✓	✓
Martinique	✓	✓	✓
Mauritania	✓	✓	✓
Mauritius	✓	✓	–
Mexico	✓	✓	✓
Moldova	✓	✓	✓
Monaco	✓	✓	–
Mongolia	✓	✓	✓
Montenegro	✓	✓	–
Morocco	✓	✓	✓
Mozambique	✓	✓	✓
Namibia	✓	–	✓
Nepal	✓	✓	–
Netherlands	✓	✓	✓

Country	2006	2007	2008
New Caledonia	✓	✓	✓
New Zealand	✓	✓	✓
Niger	✓	–	–
Nigeria	✓	–	–
Norway	✓	✓	–
Pakistan	✓	✓	✓
Panama	✓	✓	✓
Papua New Guinea	✓	✓	–
Paraguay	✓	✓	–
Peru	✓	✓	–
Philippines	✓	✓	–
Poland	✓	✓	✓
Portugal	✓	✓	✓
Qatar	✓	✓	✓
Republic of Korea	✓	✓	✓
Reunion	✓	✓	✓
Romania	✓	✓	✓
Russian Federation	–	✓	✓
Rwanda	✓	✓	–
Saint Kitts and Nevis	–	–	✓
Saint Lucia	✓	✓	✓
San Marino	✓	✓	✓
Sao Tome and Principe	✓	–	–
Saudi Arabia	✓	✓	–
Senegal	✓	✓	✓
Serbia	✓	✓	✓
Seychelles	✓	✓	✓
Singapore	✓	✓	✓
Slovakia	✓	✓	✓
Slovenia	✓	✓	✓
South Africa	✓	✓	✓
Spain	✓	✓	✓
Sri Lanka	✓	✓	–
Suriname	✓	✓	✓
Swaziland	✓	✓	✓
Sweden	✓	✓	✓
Switzerland	✓	✓	✓
Syria	✓	✓	–
Thailand	✓	✓	✓
Togo	–	✓	–
Tunisia	–	✓	✓
Turkey	✓	✓	✓
Turks and Caicos	✓	✓	✓
Uganda	✓	✓	✓
Ukraine	✓	–	–
United Arab Emirates	✓	✓	✓
United Kingdom	✓	✓	✓
United Republic of Tanzania	✓	–	✓

Country	2006	2007	2008
United States of America	✓	✓	✓
Uruguay	✓	✓	✓
Uzbekistan	✓	✓	✓
Vanuatu	✓	✓	–

Country	2006	2007	2008
Venezuela	✓	✓	✓
Viet Nam	✓	✓	✓
Zambia	✓	✓	✓
Zimbabwe	✓	✓	✓

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

The accuracy of the data provided in CITES annual reports is a further limitation to analysis of the trade. The quality of some reports was lacking and cross-referencing of importer data was needed to ensure the accuracy of the data. Occasionally skins have been misreported as live animals, while skin pieces, such as back strips, necks, flanks and tails, have 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.

Most CITES annual reports are compiled on a shipment-by-shipment basis and many 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. In recent years, the majority of countries trading in crocodilian skins have reported on a shipment-by-shipment basis.

Analysing annual reports is also complicated by the inconsistent way in which the reports are compiled. According to CITES Notification to the Parties No. 2006/030 of 2 May 2006, 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 skins and caimans has been variable over the ten-year period 1999 to 2008, with an average of 1,318,244 skins exported annually (Table 2; Figure 1) . The data provided are based, wherever possible, on country of export data. 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.

Table 2. Reported global trade in crocodilian skins 1999-2008

Species	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Alligator mississippiensis	239,944	249,155	343,116	237,840	341,734	368,409	356,393	421,220	262,133	230,464
Crocodylus acutus	0	0	100	630	830	227	204	120	404	1,371
C. johnsoni	45	10	0	2	0	0	65	0	0	0
C. moreletii	2	1,228	2,430	1,591	997	549	855	158	11	724
C. niloticus	133,339	147,311	150,757	159,970	148,553	140,497	151,491	166,307	154,289	169,295
C. novaeguineae	22,191	23,233	30,634	30,749	27,308	39,796	32,002	38,645	28,663	28,217
C. porosus	15,971	25,791	28,223	24,278	26,564	30,728	37,441	34,152	45,215	53,888
C. rhombifer	0	0	0	0	0	2	0	0	0	0
C. siamensis	5,459	2,417	4,422	3,580	10,982	20,930	31,517	47,972	54,331	63,471
subtotal	**416,951**	**449,145**	**559,682**	**458,640**	**556,968**	**601,138**	**578,451**	**708,574**	**545,046**	**547,430**
Caiman crocodilus crocodilus	32,571	38,155	*25,510	22,709	34,636	70,722	65,078	69,574	44,894	36,989
C. c. fuscus	777,791	840,993	710,113	552,077	572,059	621,691	603,223	972,941	670,828	533,549
C. latirostris	0	0	88	90	165	215	2,752	1,669	1,125	809
C. yacare	615	15,629	32,128	78,811	60,288	41,882	53,241	52,998	65,452	56,194
subtotal	**810,977**	**894,777**	**767,839**	**653,687**	**667,148**	**734,510**	**724,924**	**1,097,182**	**782,299**	**627,541**
Grand total	**1,227,928**	**1,343,922**	**1,327,521**	**1,112,327**	**1,224,116**	**1,335,648**	**1,303,375**	**1,805,756**	**1,327,345**	**1,174,971**

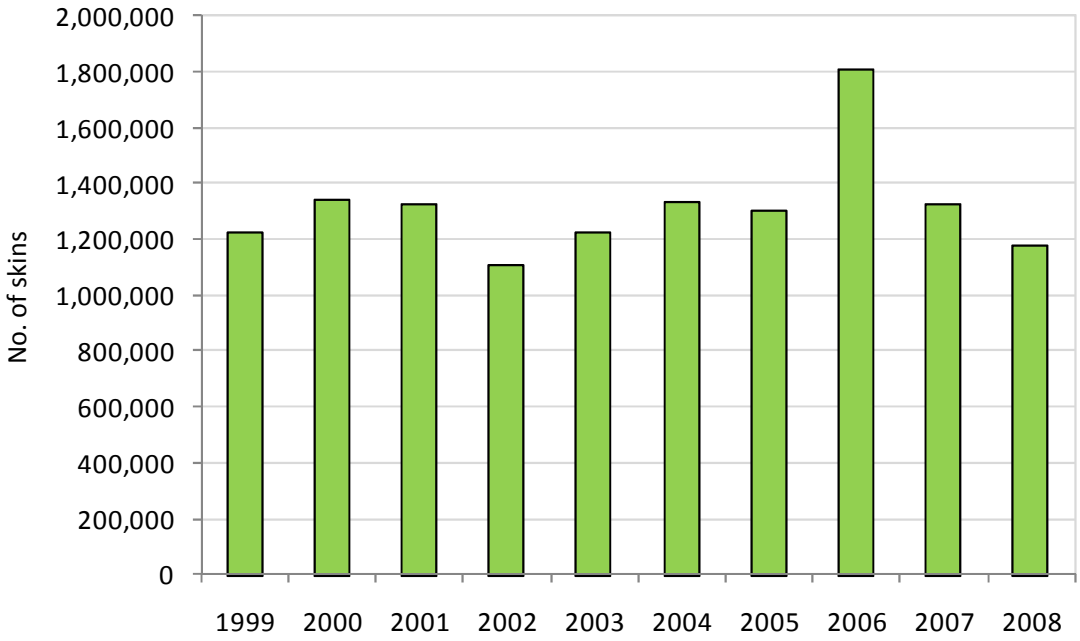


Figure 1. Global exports of crocodilian skins, 1999-2008

Overall the total number of skins entering international trade in 2008 was approximately 1.2 million, a return to the levels seen between 1999 and 2005 after a peak in trade levels in 2006 of around 1.8 million. However, it should be noted that the figure for 2008 may need adjustment when more annual report data are received, particularly with regard to Papua New Guinea.

The species composition of the trade in skins varied over the ten year period 1999-2008. Some diversification in the species in trade began in 2001 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 and appears to be increasing in the case of *C. acutus*. The first exports in recent years of wild *Caiman crocodilus crocodilus* skins from Guyana occurred in 2001 and continued through 2008, while 2005 saw the first exports of ranched *Caiman yacare* from Argentina. The steady increase in exports of *Alligator mississippiensis* from the United States of America 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 yearly since 2000 with Madagascar, 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 continent-wide production is up in several countries. *C. novaeguineae* production in 2007 and 2008 appears to have decreased with a corresponding increase in that of *C. porosus*, perhaps suggesting a change in market

preference. Thailand's exports of *C. siamensis*, which had ranged between 1,679 and 5,459 between the mid 1990s and 2002 has since showed a steady increase to over 39,000 in 2008 and Viet Nam also exported significant numbers of skins of this species between 2005 and 2008.

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, but then 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.

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

Species accounts

Crocodylus acutus American crocodile

Colombia has five farms registered with CITES for production of this Appendix I species. Skin exports began in 2003 with 130 skins from captive-bred animals going to France. Exports of small numbers of skins have continued ever since, rising to 367 in 2008. All of the skins exported by Colombia in 2007 and 2008 were imported by Italy.

Honduras has one registered breeding operation for this species and the first reported trade was of 500 skins imported by Japan in 2003. This was followed by exports of 197 skins to Panama in 2004 that were apparently subsequently re-exported back to Honduras. In 2005, Honduras reported exporting 76 skins and a further 111 in 2006. Exports fell to just 54 skins in 2007, but none were confirmed by the importers. The 2008 annual report from Honduras shows an increase in exports to 1004 skins, 900 of which went to Panama which has been the main importer of this species from Honduras.

Crocodylus johnsoni Australian freshwater crocodile

Exports of *Crocodylus johnsoni* from **Australia** peaked at 3,875 skins in 1993, remained at this level until 1996 and then fell to insignificant levels thereafter. No direct exports in skins of this species were reported in 2001 or 2004 and only two, exported to Japan, in 2002. Although Japan reported the import of 184 skins in 2003, the format of the export permit numbers would suggest the trade was in manufactured products rather than whole skins. In 2005, Singapore reported re-exporting 1,594 skins to China, but the country of origin permit numbers suggest these were skins that had been stockpiled since 1993 and 1994 and were not evidence of new exports from Australia. In 2005, Australia reported exporting 44 skins from wild-caught individuals and 21 from captive-bred animals to Singapore, and the exports were confirmed by Singapore. No further trade in skins 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 began in 1996 with just 10 skins and were followed by low levels of exports increasing to 2,430 in 2001 (Figure 2). Exports subsequently decreased and have remained below 1,000 per annum since then. According to Mexican export data, 549 skins were exported in 2004, 855 in 2005 and 158 in 2006. The 2007 report from Mexico indicates that only 16 skins were exported in that year and although a further 40 were reported as an import by Japan a check of the permit number revealed that this was reported as an export by Mexico in 2006. In 2008, Mexico reported exporting 724 skins, mostly to the Republic of Korea. 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.

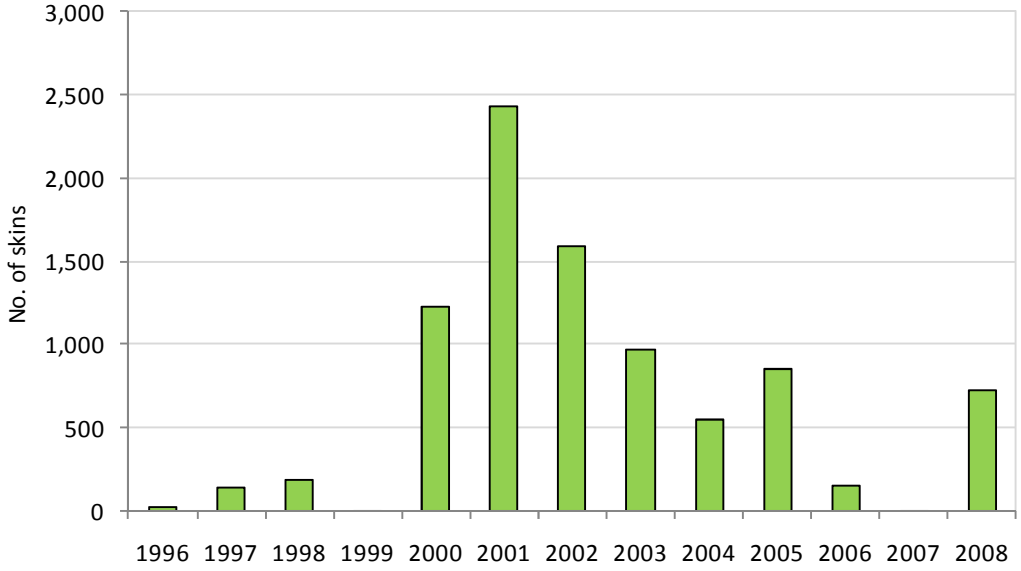


Figure 2. Exports of *Crocodylus moreletii* skins as reported by Mexico, 1996–2008

Crocodylus niloticus Nile crocodile

A summary of the reported trade in *Crocodylus niloticus* skins between 2001 and 2008 is available in Table 3. The section that follows summarises information on exports by both range state 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, Tanzania, Zambia and Zimbabwe, which are included in Appendix II.

1. Exports by range States

Botswana: Although Botswana reported exports of over 9,000 skins between 1992 and 1994, no commercial exports of skins were reported by Botswana between 1997 and 2008 However, South Africa reported importing 152 skins from captive-bred individuals in 2001, 320 ranched skins in 2007 and another 374 from captive-bred animals in 2008.

Central African Republic: There have been no commercial exports from the Central African Republic since 1986.

Congo: Small numbers of skins were exported to France during the 1980s, but there have been no commercial exports reported since 1989.

Ethiopia: The sole crocodile 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. For example, the 2003 annual report shows nine shipments totalling 1,354 skins exported to the United Kingdom, whereas the data from EWCO shows five shipments totalling 900 skins. Imports reported by the United Kingdom in 2003 and 2004 on permits issued by Ethiopia in 2003 amount to 819 skins. The United Kingdom was the sole importer between 2002 and 2004, but exports to France began in 2005 and France appears to have been the only importer in 2006 and 2007. Data recently 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 the data from France were used.

Guinea: Guinea has not reported exporting skins since 1991, nor have there been any reported imports from that country apart from a seizure of 100 skins reported by Spain in 1995.

Kenya: In 2006, Kenya reported exporting 8,710 skins, a further 6,354 in 2007 and 4,504 in 2008, all to Singapore. In 2006, the skins were reported to be from captive-bred animals and in 2007 the source was roughly half ranched, half captive-bred, which suggests the two sources may be considered interchangeable. In 2008, all were reported to be ranched. A report of May 2006 indicates six crocodile farms in Kenya, one of which only conducted ranching, two only captive-breeding, and three both captive-breeding and ranching. (http://www.cites.org/common/resources/reports/ranch/KE0605.pdf).

Liberia: Commercial exports to France, amounting to almost 1,500 skins, were reported between 1981 and 1984 but none since.

Madagascar: Madagascar's exports increased steadily between 1992 and 2001, peaking at 9,408 skins in 2001, but subsequently decreased with 2,640 skins exported in 2008, reaching the lowest level since 1995 (Figure 3). This is a decrease of approximately 52% compared to the 5,550 skins exported in 2007. 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).

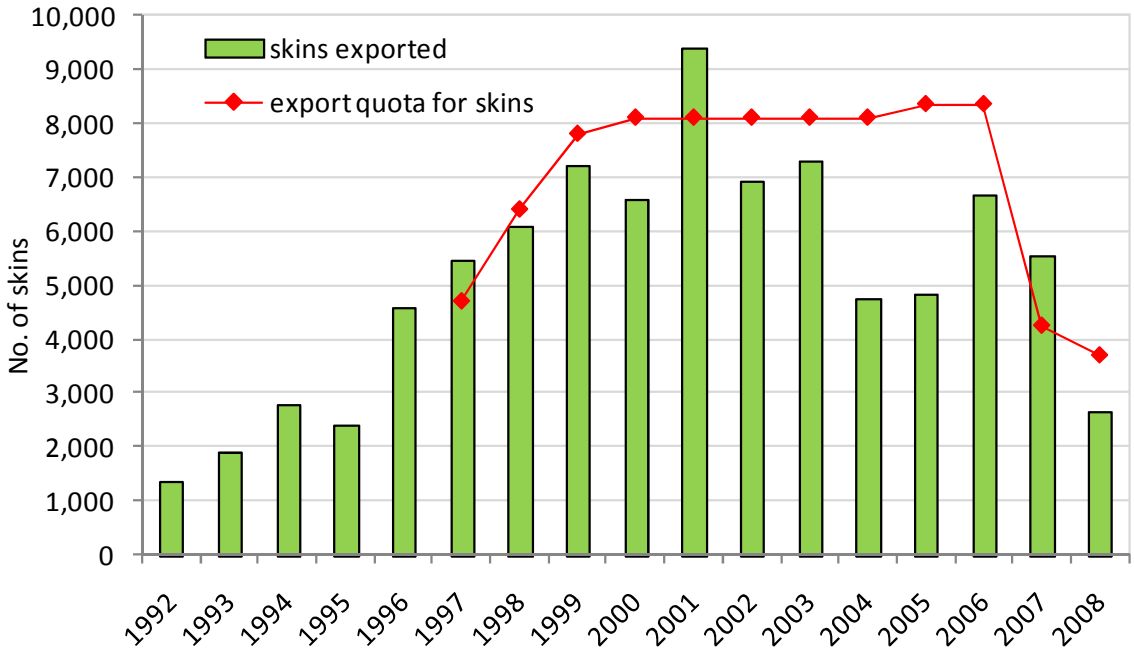


Figure 3. Exports of *Crocodylus niloticus* skins from Madagascar, 1992 - 2008

Malawi: In 2006, Malawi reported exporting 698 skins to France and Germany, 450 from wild-caught animals and 248 from ranched specimens. Exports increased in 2007, with reported exports by Malawi totalling 1,287 of which 215 were from wild harvest, the remainder ranched, although actual trade may have been as high as 1,350 skins on the basis of importer data. A total of 3,370 skins, the majority ranched, were reported as exports by Malawi in 2008. Only 200 skins were from wild-caught animals. Most of the skins were reported as exports to Italy.

Mali: Mali has one captive-breeding operation registered with the CITES Secretariat - Ets Lassana Diaby Cuirs et Peaux that was apparently 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.

Mozambique: In 2006, Mozambique reported the export of three shipments of ranched skins, totalling 2,000, to Singapore. This trade was confirmed by the Singapore annual report, although apparently on permits issued by Mozambique in 2005. A check of Mozambique's

2006 permits showed that the earlier ones had expired and been replaced. In 2007, Mozambique reported just one export of 179 skins of wild nuisance animals to South Africa which confirmed the transaction. In 2008, Mozambique reported exports of 503 skins from wild-caught animals to South Africa and 63 ranched skins to France. These last two transactions were also confirmed by the importers.

Namibia: In 2006, Namibia reported exporting five skins to France and a further 300 to South Africa, all from wild specimens. France reported importing eight skins on the same Namibian export permit but described them as coming from animals bred in captivity. None of the transactions were reported by South Africa. No report has been received from Namibia for 2007, although one has been submitted for 2008; however, there are no indications of further exports of crocodile skins from Namibia in that report and none have been reported by importing countries.

Nigeria: Italy reported importing 10,304 skins from Nigeria in 1981 and a further nine in 1983. No further commercial shipments have been reported, 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 trade appears to have been two skins exported to Ukraine in 2006 and one to France in 2008.

Somalia: A total of 2,189 skins were reported as imports by Italy and Japan in 1980 and 1981, but no further commercial shipments have been reported since. 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 2006, South Africa reported direct exports of 24,089 skins, all but 300 from captive-bred animals, but a further 8,849 skins from animals bred in Mozambique were re-exported, as were 1,265 skins from animals originating in Zimbabwe. In 2007, South Africa reported exporting 30,514 skins and another 5,500 from animals bred in Mozambique and in 2008 they reported 40,197 plus 4,500 from Mozambique. Note that all of these additional skins were from animals exported as hatchlings and juveniles by Mozambique and the trade is not included in Mozambique's skin export data. It should also be noted that South Africa has been a major re-exporter of skins produced in Zambia and Zimbabwe in the past, but most of these are now exported directly by the producer countries.

Sudan: The only recorded commercial trade involving Sudan was in 1992 when Egypt reported importing 7,900 skins. However, there have been no records of re-exports of Sudanese crocodile skins by Egypt and it seems likely that the trade may have actually been in skins of Nile monitor *Varanus niloticus* misreported by Egypt.

Togo: No trade in skins has been reported since the early 1980s when 6,377 were exported to France.

Uganda: In 2005, the Republic of Korea reported importing 900 skins from Uganda of which 300 were on permits issued in 2004. Uganda only reported exporting 300, but a check of permit numbers revealed that it was possible that Uganda's 2005 annual report was incomplete as the date of the last permit issuance was September 2005. Uganda has recently (February 2010) submitted their missing annual reports for 2006-2009, but no exports of crocodile skins are included. However, the Republic of Korea reported importing 300 skins in 2006 and 290 skins in 2008. All skins imported in 2005 and 2006 were reported to be from captive-bred specimens, but those in 2008 were reported to be from the wild.

United Republic of Tanzania: Tanzania states that their annual report represents actual trade however, because of major discrepancies between Tanzania's reports and the data provided by importers, serious doubt has emerged that Tanzania has included all of their crocodile export data in their annual reports since 2002. Therefore, the figures in this report have been taken from the reports of the major importing countries, notably Singapore and Italy (Table 3). According to importer-reported data, skin exports from Tanzania have increase from 1,100 in 2006 to 1,784 in 2008, all skins being of wild origin. No report has been received from Tanzania for 2007, although one has been submitted for 2008.

Zambia: In 2006, Zambia reported exports of 39,804 skins. Singapore, however, reported permits for an additional 2,462 skins that were not reported by Zambia. Similarly, 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, then the probable level of export from Zambia was 42,266 skins in 2006 and 44,597 in 2007. This discrepancy did not occur in 2008 when Zambia reported exports of 28,917 skins. All skins from Zambia are reported to come from ranching operations.

Zimbabwe: In 2006, the Crocodile Farmers Association of Zimbabwe (CFAZ) reported exports of 71,616 skins (compared to 80,873 reported by the Management Authority in Zimbabwe's annual report). For 2007, CFAZ reported exports of 64,490 skins compared to the Management Authority figure of 54,810 skins; however, a comparison with importers data suggested that several shipments had not been included in Zimbabwe's annual report. In 2008, CFAZ reported exports of 81,554 skins compared with 59,509 reported by the Management Authority in the annual report. 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. It is known that not all skins exported are produced by CFAZ members and therefore these data do not reflect a complete record of Zimbabwe's skin exports.

Table 3. Reported trade in *Crocodylus niloticus* skins, 2001-2008

Country	2001	2002	2003	2004	2005	2006	2007	2008
Botswana	152	0	0	0	0	0	*320	*374
Brazil	50	0	1	44	0	0	0	0
Ethiopia	42	220	900	300	347	727	*594	492
Israel	*2,289	699	0	0	0	0	0	0
Kenya	*3,713	2,317	*1,687	2,850	9,550	8,710	6,354	4,504
Madagascar	9,408	6,936	7,300	4,760	4,850	6,660	5,500	2,640
Malawi	1,256	*120	301	*100	*1,038	698	*1,350	3,370
Mali	0	0	0	0	0	0	0	107
Mauritius	93	178	118	400	150	184	231	0
Mozambique	477	293	3,160	0	1,156	2,000	179	566
Namibia	0	0	0	0	400	305	0	0
South Africa	33,335	45,755	31,321	35,760	35,486	34,203	36,014	44,697
Uganda	900	*2	600	600	*600	*300	0	*290
U.R.Tanzania	1,498	*1,259	*1,439	*1,067	*1,584	*1,100	*1,556	*1,784
Zambia	20,887	22,259	28,019	26,353	*33,184	*42,266	*44,597	28,917
Zimbabwe	*59,096	*69,075	70,378	60,185	70,416	80,873	54,810	59,509
	♦76,657	♦79,932	♦73,707	♦68,263	♦63,146	♦71,616	♦64,490	♦81,554
Total	**150,757**	**159,970**	**148,553**	**140,497**	**151,491**	**168,769**	**161,185**	**169,295**

Key: * Figure derived partly or in full from import data; ♦ Data supplied by CFAZ

2. Other exporting countries

Brazil: Brazil reported exporting one skin to the United States in 2003 and a further 44 in 2004, but none since.

Israel: Israel reported exporting 699 skins to France in 2002, a figure confirmed by the importer. No further trade was reported for 2003–2008.

Mauritius: Mauritius first reported exporting skins (30) from captive-bred individuals in 2000. This gradually increased to 400 in 2004, but decreased to 150 in 2005. In 2006, Mauritius reported exporting 184 skins and, in 2007, a further 231. No information has been received from Mauritius for 2008 and no importers have reported receiving skins from there in 2008. Previous importers have been Madagascar, Singapore and Zimbabwe.

Crocodylus novaeguineae New Guinea crocodile

Over the period 2000 to 2008, the total number of skins of this species exported by the main producers, Indonesia and Papua New Guinea, peaked in 2004 and 2006, but then decreased again in 2007 and 2008 (Table 4).

Table 4. Reported trade in *Crocodylus novaeguineae* skins, 2000-2008

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008
Indonesia	7,215	9,946	11,951	8,826	10,481	13,585	16,575	12,759	10,588
PNG	16,018	20,688	18,798	18,482	29,315	18,417	22,070	15,904	*17,629
Total	**23,233**	**30,634**	**30,749**	**27,308**	**39,796**	**32,002**	**38,645**	**28,663**	**28,217**

Key: * Figure derived from import data

Indonesia: Exports fluctuated between 1999 and 2008 from a low of 6,574 in 1999 to a peak of 16,575 in 2006. Exports increased steadily between 2003 and 2006, but decreased in both 2007 and 2008. The main destinations for *C. novaeguineae* skins were Japan, the Republic of Korea and Singapore. The proportion of skins reported as wild collected increased from 28 per cent of the total in 2002 to 82 per cent in 2005 but was reduced to between 60 and 70 per cent between 2006 and 2008.

Papua New Guinea: Exports peaked in 2004 with 29,315 skins, but have decreased since then to 15,904 skins in 2007 (the last year with exporter-reported data). The majority of the skins were exported to Japan, with smaller quantities being imported by Australia, France and Singapore. In 2000, wild-collected skins accounted for 83% of the production, increasing to 93%in 2001. Since 2001, all skins exported by Papua New Guinea 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. Total number of *C. porosus* skins exported by the main producers, Australia, Indonesia, Malaysia, Papua New Guinea, Singapore and Thailand steadily increased between 2000 and 2008, rising to a total of 53,3888 skins in 2008 (Table 5).

Table 5. Reported trade in *Crocodylus porosus* skins, 2000-2008

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008
Australia	13,296	11,849	*10,423	*14,744	*12,741	*20,409	*16,123	*21,314	28,626
Indonesia	3,172	3,456	3,277	2,732	3,968	4,714	3,825	5,151	5,718
Malaysia	*559	*675	*662	*618	*1,450	*1,058	*1,684	*1,273	*1,043
PNG	8,336	10,676	9,332	8,000	11,043	10,222	10,208	12,675	*13,564
Singapore	438	762	584	470	*693	538	1,712	1,653	1,877
Thailand	0	805	0	0	300	500	600	3,149	2,560
Total	**25,791**	**28,223**	**24,278**	**26,564**	**30,728**	**37,441**	**34,152**	**45,215**	**53,388**

Key: * Figure wholly or partly derived from import data

Australia: Comparison of data reported by Australia with that reported by importing countries suggests that Australia has been underreporting the quantities of skins exported and

the data for the years 2002 to 2007 in Table 5 have been taken from reports of the importing countries. Data reported by Australia for 2008 appear to be more accurate so have been included. 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 2007 and 2008, the amount of skins reported as ranched had increased to 42 per cent and 46 per cent, respectively. 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 have shown a relatively steady increase between 2000 and 2008, rising to 5,718 skins in 2008 (Table 5). The main importers were Japan and Singapore with lesser quantities going to France and Italy. The source of the skins has been reported in a very inconsistent manner. In 2005, 80 per cent were reported to be from ranched animals, and 17 per cent from captive breeding. In 2006, 52 per cent were from captive breeding, the remainder from ranching, and in 2007 only 42 from captive breeding and 58 per cent from ranching. In 2008, it was 12 per cent from ranching - it therefore seems possible that these sources are being used interchangeably.

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 crocodilian skins from Malaysia, has not distinguished between belly skins and back straps in earlier years so it is possible that quantities have been overestimated. The number of skins reported as imports by Singapore are given in Table 5 rather than the inconsistent data from Malaysia. There are five CITES-registered captive-breeding operations for this species in Malaysia.

Papua New Guinea (PNG): PNG reported exporting 12,675 skins in 2007, the highest over the period 2000-2008 and, although no report for 2008 has been received from PNG, the estimated level of exports appears to be continuing to increase. The proportion of skins from captive-bred animals was reported to be 61 per cent in 2005, increased to 66 per cent in 2006 and further to 67 per cent in 2007 and 2008, with the remaining skins from the wild.

Singapore: Singapore reported commercial exports of 538 skins, apparently from registered captive-breeding operations (of which there are two) in 2005; 1,712 in 2006; 1,653 in 2007 and 1,877 in 2008. Most of the skins went to France and Italy, with a small number going to Japan.

Thailand: Thailand reported exporting 500 skins in 2005, 600 in 2006 and 3,149 in 2007, all from animals bred in captivity. Exports fell slightly to 2,560 in 2008. There are 12 CITES-registered captive-breeding operations for this species in Thailand and recent figures suggest an increase in production from these facilities.

Crocodylus rhombifer **Cuban crocodile**

No trade has been reported for this Appendix-I species since 1998, apart from one skin reported as a personal import by Denmark in 2004.

Crocodylus siamensis Siamese crocodile

Cambodia: Singapore reported importing 30 skins from Cambodia in 2001, the first reported trade involving that country. The skins were subsequently re-exported to Japan in 2002, but no further trade in skins from that country was reported until 2007 when Cambodia reported exporting 100 skins to Thailand from a registered captive breeding operation. In 2008, Cambodia reported exporting a further 1,300 skins to Thailand. Cambodia has six crocodile farms registered with the CITES Secretariat for the commercial production of this species.

Thailand: There are 22 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 (Figure 4). The main importer is Japan, with smaller quantities going to Italy and Singapore.

Viet Nam: The first reported exports were of 825 skins, mostly to the Republic of Korea, in 2004, with a further 3,371 skins being exported in 2005. The majority of these went to Japan, with smaller quantities going to Australia and Italy. Since then, exports have steadily increased with 16,125 skins exported in 2006; 17,190 in 2007 and 23,062 in 2008, with Japan, Singapore, the Republic of Korea, France and Italy being the main destinations. Viet Nam has seven captive-breeding operations registered with the CITES Secretariat for this species.

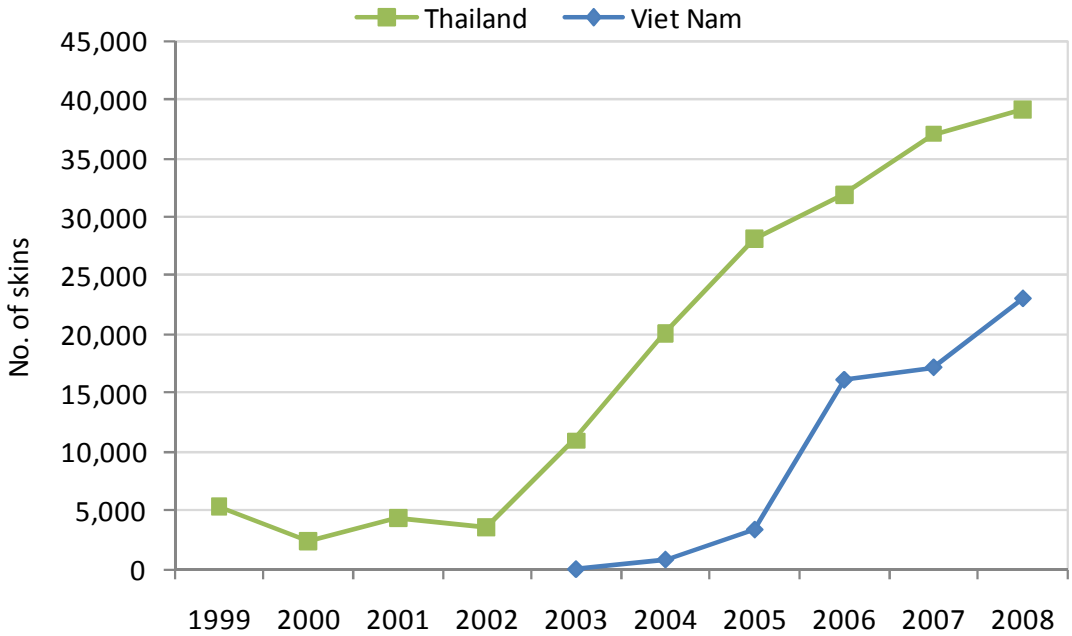


Figure 4. Exports of *Crocodylus siamensis* skins from Thailand and Viet Nam 1995 – 2008

Crocodylus siamensis/porosus Crocodile hybrid

No international trade in skins of this hybrid species has been reported since 1995 when Thailand exported 250 to Singapore; however, Thailand does export meat and a small quantity of manufactured items annually.

Osteolaemus tetraspis West African dwarf crocodile

There is no international trade in skins of this Appendix-I species. However, seizures of small numbers of manufactured crocodilian items, mainly emanating from Nigeria, are reported annually. Unfortunately, very few of these seizures are reported to species level, so it is impossible to estimate the scale of the problem or even if it is this species that was involved.

Alligator mississippiensis American alligator

Over the period 1986 and 2006, reported exports of *A. mississippiensis* from the **United States** generally increased from around 31,000 skins in 1986 to 421,220 in 2006, but then sharply declined to pre-2003 levels in 2007 and 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.

Table 6. Exports of *Alligator mississippiensis* skins reported by USA 1986-2008

1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
31,235	45,177	50,303	76,963	120,419	128,447	155,264	192,286	210,236	185,929	163,936	198,649
1998	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	
206,620	239,519	248,922	343,110	237,840	341,734	368,409	356,393	421,220	262,133	230,464	

Four countries, France, Germany, Italy and Singapore, import 95 per cent of production, with smaller quantities being 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. In 2004, for instance, 58 per cent of exports were reported as coming from captive-bred individuals. However, in 2005, there appears to have been a change of policy and 99.5 per cent of the skins for that and subsequent years were reported as coming from wild-caught individuals. 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 crocodilian populations transferred from Appendix I to Appendix II subject to ranching. Other codes used are '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.)) and 'W' – wild.

This species is also bred in captivity in Israel which reported exporting 233 skins to France in 2000. Only six skins were exported, again to France, in 2001 and none have been reported subsequently.

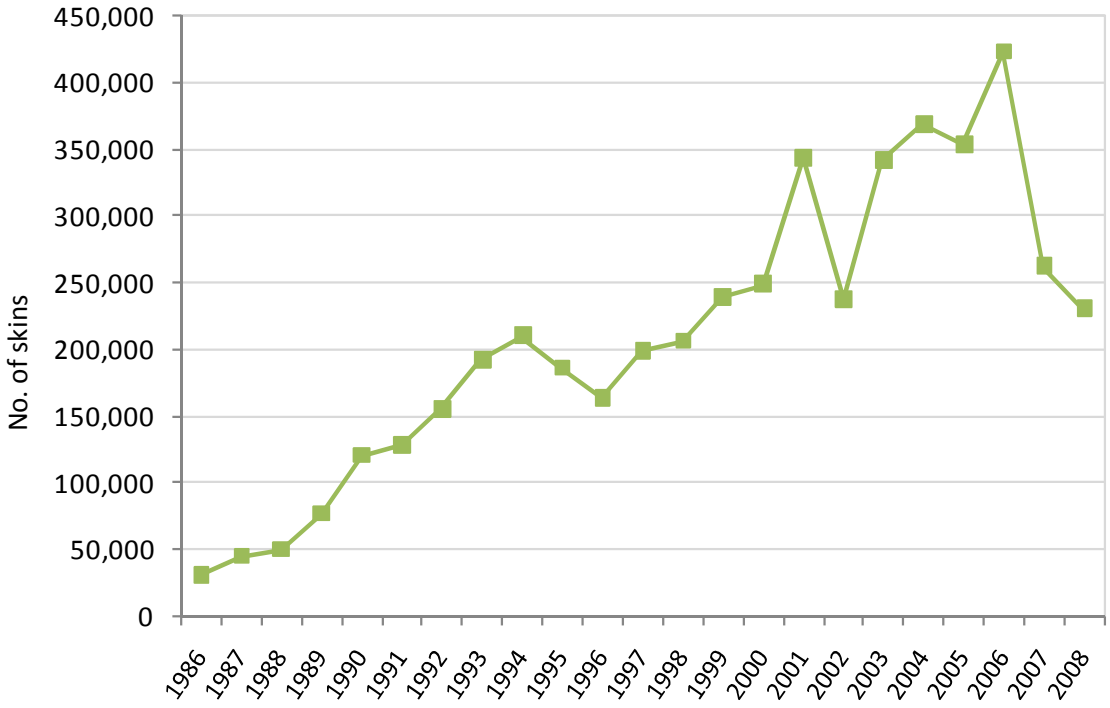


Figure 5. Exports of *A. mississippiensis* skins from the United States, 1986-2008

Caiman crocodilus crocodilus Spectacled caiman

The **Bolivarian Republic of Venezuela** (hereafter referred to as Venezuela) is the main supplier of skins of this species, almost all from wild-collected animals. Exports peaked in the late 1980s and early 1990s with quantities exceeding 100,000 skins in several years. Exports gradually declined during the 1990s and early 2000s, possibly as a result of the production of massive numbers of *Caiman crocodilus fuscus* in Colombia, but also because of high taxation of the caiman hunting industry in Venezuela. In 2003, exports began to increase again and Venezuela reported exports of 33,942 skins that year. Between 2004 and 2006, Venezuela exported around 60,000 skins annually; however, exports plunged to less than half that level in 2007 and fell further in 2008 to 15,489 skins. The quantity of skins exported annually from Venezuela since 1985 is shown in Figure 6.

Guyana was the supplier of more than 350,000 skins between 1984 and 1989, but exports dwindled during the 1990s and there are no records of skins being exported between 1998 and 2000. However, trade began to pick up again in the early 2000s and increased to 2,301 skins reported by Guyana in 2005. This again increased to 3,720 in 2006, mostly going to Panama. In 2007, Guyana reported exporting a total of 16,707 skins, the majority going to Mexico, but with

smaller quantities going to Panama, Republic of Korea and Thailand. Only an incomplete report has been received from Guyana for 2008, based on permits issued in 2007 where the export took place the following year, but imports reported by Mexico suggest at least 18,500 wild-caught skins were traded in 2008.

Colombia also farms small numbers and exports amounted to 4,431 in 2005, 4,990 in 2006, 4,986 in 2007 and 3,000 in 2008; all were reported to be from animals bred in captivity.

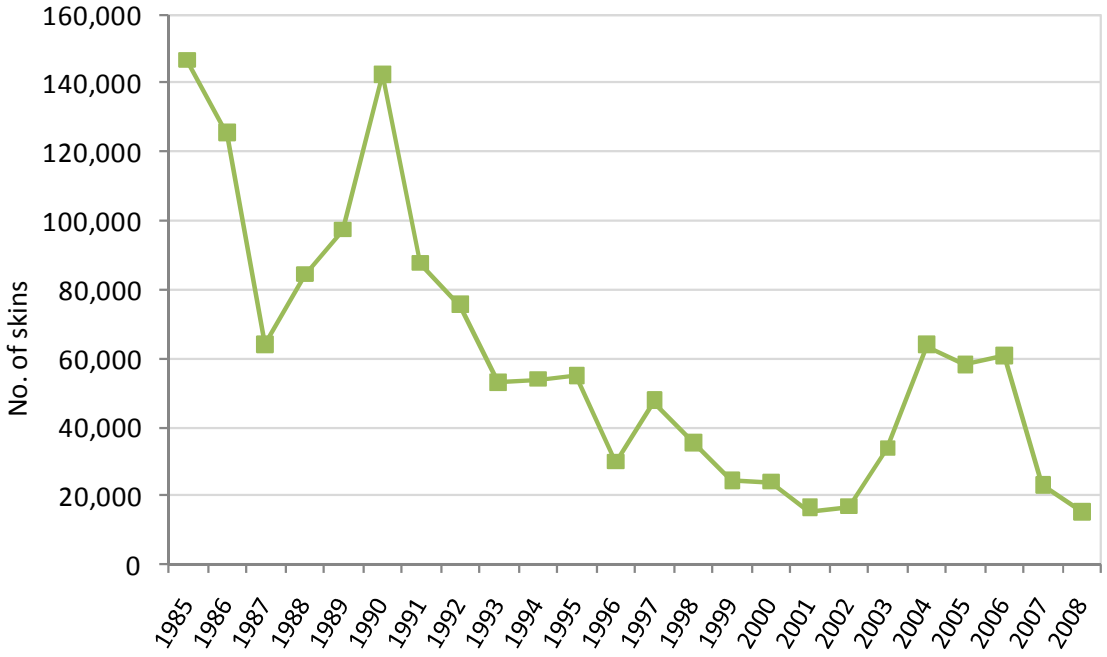


Figure 6. Exports of *Caiman crocodilus crocodilus* skins from Venezuela 1985-2008

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. Details of the countries that reportedly exporting this species from 2000 to 2008 are shown in Table 7.

Table 7. Reported trade in *Caiman crocodilus fuscus* skins, 2000-2008

Exporter	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	824,303	698,413	540,579	552,219	605,841	599,527	970,731	668,076	532,394
Nicaragua	6,440	0	0	0	0	0	0	0	0
Panama	10,250	11,700	11,498	19,840	15,850	*3,696	*2,310	*2,752	*1,155
Total	**840,993**	**710,113**	**552,077**	**572,059**	**621,691**	**603,223**	**972,941**	**670,828**	**533,549**

Key: * Figure derived from import data.

Colombia remains the major exporter with exports increasing from around 70,000 skins in 1990 to over 820,000 in 2000. Since then, exports fell to around 550,000 in 2002 and 2003, increased to about 600,000 in 2005, but then increased dramatically to 971,000 in 2006. This figure was initially disputed by the CITES Management Authority of that country but

subsequent investigation showed it to be correct. In 2007, exports fell to 668,000 and decreased further to 532,000 in 2008. Reported exports from Colombia between 1990 and 2008 are provided in Figure 7. Singapore's imports of Colombia's skin production have fluctuated between 47 and 56 per cent between 2003 and 2008 and most of the skins are then re-exported. The other major importers are the United States and Mexico who imported 12 and 18 per cent respectively between 2004 and 2008. Direct exports to Thailand have decreased steadily from 30% 1997 to around 6% between 2004 and 2008.

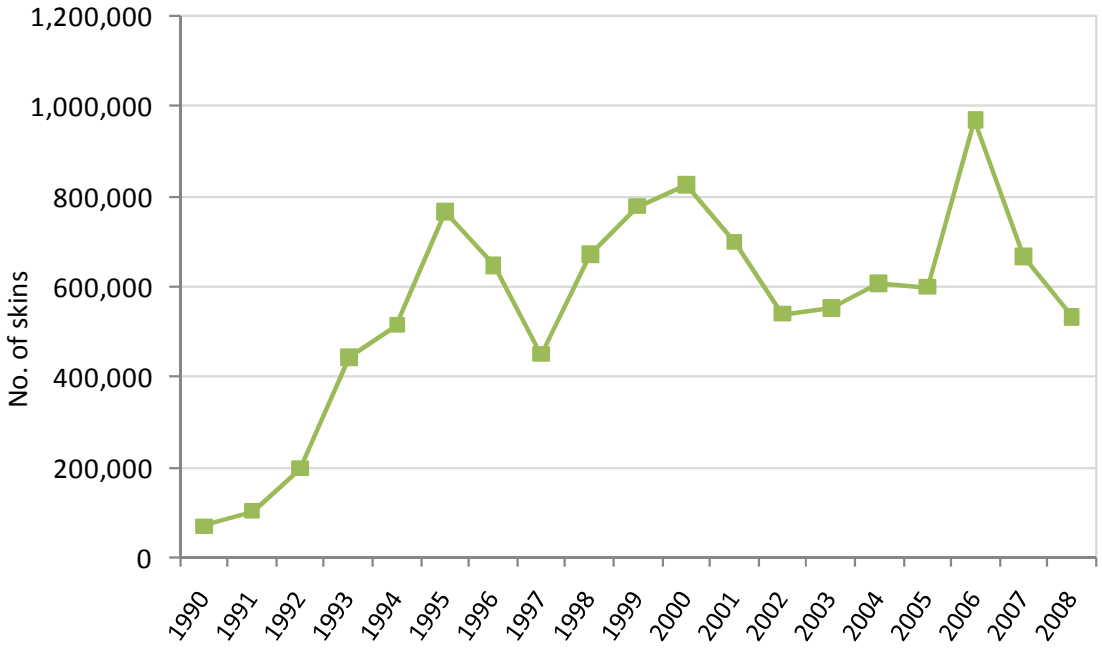


Figure 7. Exports of *Caiman crocodilus fuscus* skins from Colombia, 1990-2008

No exports have been reported from **Honduras** since 1998, and it seems likely that the reported exports between 1996 and 1998 were in fact re-exports. **Nicaraguan** production has fluctuated from year to year but the last reported export was of 6,440 skins to Panama and Spain in 2000. Although an important entrepôt State, **Panama** clearly distinguishes between exports and re-exports in its annual reports. The first significant export of 10,250 skins was reported in 2000 and trade appears to have peaked in 2003 at 19,840. Panama's annual reports for 2005 to 2008 do not give credible data so the quantities for the most recent years have been taken from the reports of the importing countries, particularly Italy, Mexico, Singapore and Spain.

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 skins from ranched animals were reported by Argentina in 2001, a shipment of 88 to Italy. A further 90 skins were exported to Italy in 2002, 165 to Italy and Germany in 2003 and 215, mostly to Germany and Japan, in 2004. In 2005, exports increased to

2,752 with most of the skins going to Mexico (56%) and Italy (36%). Exports then fell to 1,652 in 2006, to 1,125 in 2007 and, although Argentina's 2008 report has yet to be received, importers' data suggest that exports fell further to 809 skins. All skins were reportedly from ranched animals.

In 2006, Italy reported importing 50 skins from Brazil, apparently from a captive-breeding operation.

Caiman yacare Yacaré

Exports of *C. yacare* skins from the major producing countries have notably increased over the ten-year period 1999 to 2008 (Table 8). Levels in 2007 and 2008 showed an increase over the period 2003 to 2006.

Table 8. Reported trade in *Caiman yacare* skins, 1999-2008

Exporter	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Argentina	0	0	0	0	0	1	1,291	2,883	6,083	*3,556
Bolivia	0	*4,116	28,170	63,725	43,028	34,878	51,330	44,443	49,115	*51,618
Brazil	615	1,763	978	6,048	12,851	7,004	*620	*3,173	*10,254	*7,016
Paraguay	0	9,750	2,980	9,038	4,409	0	0	0	0	0
Total	**615**	**15,629**	**32,128**	**78,811**	**60,288**	**41,882**	**53,241**	**50,499**	**65,452**	**62,190**

Key: * Figure derived from import data

Argentina: Reported exports increased steadily between 2004 and 2007, peaking at 6,083 skins in 2007, and then decreased, according to importers' data, in 2008 to 3,556. The main destination for the skins in 2007 and 2008 was the United States with a few going to Europe. All of the skins were reported to be from ranching operations.

Bolivia: Reported exports increased significantly between 1999 and 2002, with 63,725 skins exported in 2002. Subsequent exports have fluctuated between a low figure of 34,878 in 2004 and a high of 51,330 in 2005. Although importers' data suggest a slightly higher figure in 2008 this may be inflated artificially by skins exported the previous year.

Brazil: Reported exports of 6,048 skins in 2002, 12,851 in 2003 and 7,004 in 2004. Most of the skins were destined for Mexico with some to the United States of America. Reports from Brazil for 2005 to 2007 do not, unfortunately, 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, as have those for 2008 as Brazil has not submitted a report for that year. All skins were from captive-breeding operations.

Paraguay: Regular exports of wild-collected skins occurred between 1994 and 2003. Paraguay reported exports of 9,038 in 2002 and 4,409 in 2003, but then 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.

Melanosuchus niger Black caiman

The Brazilian population of this species was transferred from CITES Appendix I to Appendix II in 2007. In 2008, France reported importing eight skins from Brazil with source 'W'.

Other Species

There have been no reported commercial exports from origin countries between 2000 and 2008 of skins of the following species: *Crocodylus cataphractus*, *C. intermedius*, *C. palustris, Alligator sinensis*, *Palaeosuchus palpebrosus*, *P. trigonatus*, *Gavialis gangeticus* or *Tomistoma schlegelii*.

Trade in Live Animals

The commercial export of live crocodilians outside of their range States poses a potential threat to the natural biological diversity of the importing countries. The effect these alien animals may have on native populations of crocodilians is inestimable should they establish breeding populations, a serious possibility given suitable environmental conditions and habitat. Previous IACTS reports have noted that the continued growth of the crocodilian farming industry would mean that such exports would continue for the time being.

Live crocodilians are traded for many reasons. 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 and Spain. In range States, crocodile farms and ranches import animals to supplement their gene pool and some animals are imported 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 on a species by species basis.

Alligator mississippiensis

There have been limited exports from the United States mostly destined for circuses and zoos. In 2007 and 2008, the entire trade in live *A. mississippiensis* amounted to only six animals.

Alligator sinensis

In 2006, China reported exporting 32 animals to Spain and importing 12 from the United States. In 2007, a further 25 were exported to Spain and in 2008 China reported exporting 20 to Denmark, 27 to France and 34 to Japan. All animals were captive-bred specimens.

Caiman crocodilus

Guyana reported exporting 4,087 animals in 2005, 3,227 in 2006 and 1,612 in 2007. As mentioned earlier, Guyana's report for 2008 was very incomplete, but importers' data and Guyana's incomplete data suggest the figure was 971. All were wild caught and presumably

destined for the pet industry in Europe and North America.

Suriname regularly exports small numbers of wild-caught animals for the pet industry, although there was no reported trade in live caimans in 2005. Between 2006 and 2008, Suriname reported exporting a total of 210 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 were no reports of live exports in 2008.

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

Ecuador reported exporting 52 captive-bred specimens to Denmark in 2007, but Denmark only reported importing 26. It would seem likely that the latter was the true figure and that Ecuador may have re-issued the permit.

Palaeosuchus palpebrosus

Guyana has an export quota of 500 live wild specimens annually and reported exporting 311 in 2005, 377 in 2006, and 423 in 2007. Importers' data suggest the figure was about 432 specimens in 2008. The animals all appear 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.

Palaeosuchus trigonatus

Similar to *P. palpebrosus*, Guyana has an export quota of 1,000 live wild specimens annually and reported exports of 293 in 2005, 428 in 2006 and 575 in 2007, while importers' data suggest the figure was 381 in 2008. 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

In 2006, Kuwait reported importing three captive-bred animals from Egypt and a further three from the Russian Federation for circus purposes, their source being listed as 'F'.

Crocodylus mindorensis

In 2006, Denmark reported importing 15 animals from the Philippines for breeding purposes, their source being listed as 'F'. No further trade in this species has been reported.

Crocodylus moreletii

Mexico reported exporting 30 animals to Morocco in 2005. No further trade in live animals has

been reported.

Crocodylus niloticus

South Africa is 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. Mozambique has been exporting hatchlings and juveniles to South Africa since the late 1980s. In recent years, the quantities have increased with Mozambique reporting exports of 7,000 in 2002, 5,600 in 2003 then increasing to 25,000 in 2004 and 24,200 in 2005. They then reported exporting 29,000 animals to South Africa and a further 20,000 to Zimbabwe in 2006; 31,200 to South Africa and 35,000 to Zimbabwe in 2007; and 61,000 to South Africa and 30,000 to Zimbabwe in 2008. Thus, in a seven-year period Mozambique has reported exporting 268,200 live crocodiles.

Crocodylus palustris

India reported exporting 40 captive-bred animals to Bangladesh in 2005 for zoo purposes, the transaction being reported by the importer also. No further trade in this species has been reported subsequently.

Crocodylus porosus

In 2005, Japan reported importing 20 from the Philippines, Malaysia imported five from Singapore, Spain imported 10 from Malaysia and the United States imported two from Australia. Thailand reported exporting 20 to China in both 2005 and 2006 and Singapore reported exporting 100 to Indonesia in 2006. In 2007 and 2008, the only exporter was Thailand who reported exporting one live animal to Germany, 19 to Japan and two to Viet Nam in 2007, and 15 to France and 10 to South Africa in 2008.

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 466,000 live specimens from these countries in the ten-year period to 2008. Thailand has also exported over 11,000 live animals to Cambodia, Egypt, Hong Kong, Japan, Malaysia, Philippines, the Republic of Korea, South Africa, Taiwan, Province of China, and Viet Nam since 2005. As noted in the section on skins, Cambodia has six crocodile farms, Thailand has 22 and Viet Nam has seven farms registered with the CITES Secretariat for the commercial production of this species.

Table 9. China's import trade in live *Crocodylus siamensis* 1999-2008

Exporter	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Cambodia	0	13,000	16,572	34,809	640	5,000	0	0	0	1,500
Thailand	44,622	26,475	13,179	10,898	17,300	30,250	23,696	58,793	47,180	23,600
Viet Nam	0	0	0	0	7,700	3,200	9,300	13,000	24,050	41,400
Total	**44,622**	**39,475**	**29,751**	**45,977**	**25,640**	**38,450**	**32,996**	**71,793**	**71,230**	**66,500**

Trade in other by-products

a. Meat

Total world exports in crocodilian meat as reported in CITES annual reports from 1986 to 2008 is provided in Figure 8 and indicates that between 1990 and 2005 the amount traded globally fluctuated around 400 tonnes yearly. However, exports increased sharply in 2006 and amounted to over 900 t in both that year and in 2007. In 2008, the quantity of meat exported decreased to just under 500 t, with no meat from caiman being reported in trade at all.

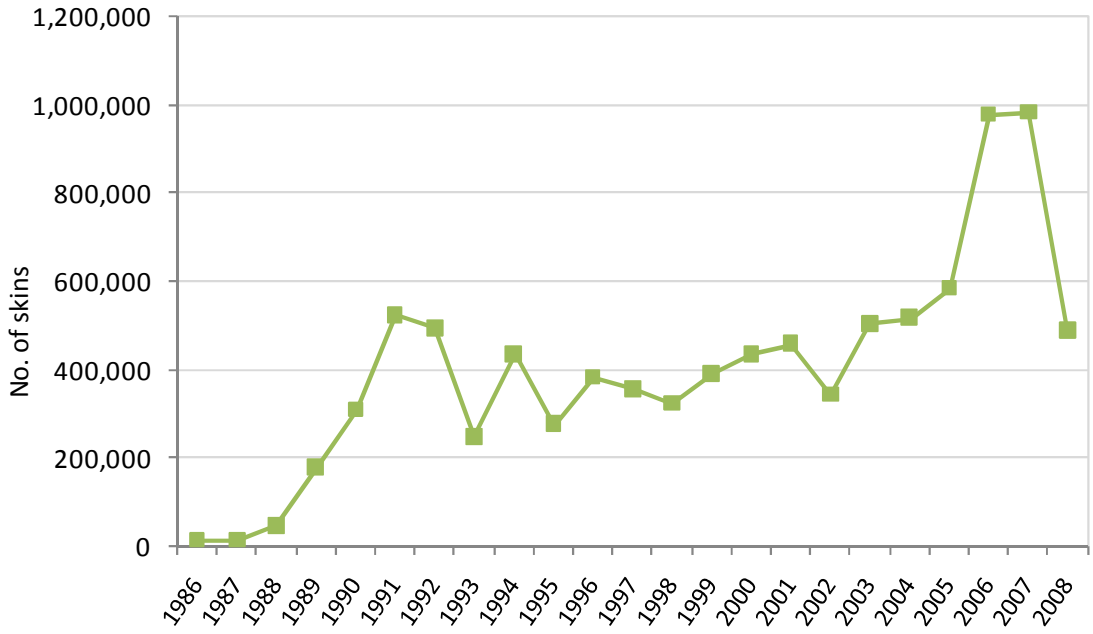


Figure 8. Global exports of crocodilian meat, 1986–2008

Since 1988, there have been major fluctuations in the countries and species involved. 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 have fallen since 1995 with the main importers currently being Canada and Hong Kong.

Exports of meat from *Crocodylus niloticus*, particularly from South Africa and Zimbabwe, have increased steadily from less than two tonnes in 1992 to over 475 t in 2007, but then decreased to half that value in 2008. The main destinations for the African crocodile meat are 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. Some imports from Israel and the United Republic of Tanzania have been reported but not since 1996.

Exports of meat from Indonesia of both *Crocodylus novaeguineae* and *C. porosus* increased up to 2000; however, since then exports dwindled to just over 600 kg in each of 2001, 2002 and 2003, none in 2004, and around 1,500 kg in each of 2005, 2006 and 2007. In 2008, only 800 kg were exported. 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 2008. Although it is possible that the data 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 were China, Japan, Malaysia, Hong Kong and Taiwan, Province of China.

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

Exports of meat from Papua New Guinea used to be composed of mixed shipments of both *Crocodylus novaeguineae* and *C. porosus*, and averaged almost 60 t annually between 1996 and 2003. All exports reported by Papua New Guinea since then have been of *C. porosus,* although Australia reported importing meat of *C. novaeguineae* in both 2003 and 2005. The volume exported was reported to be 45 t in each of 2004, 2005 and 2006, but decreased to just over 30 t in 2007. In 2008, the Australian annual report showed imports of 30 t of *C. porosus* meat giving the origin as PNG but not specifying the exporter. It seems likely that these were in fact direct imports from PNG.

The biggest change in the crocodilian 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. In 2004, exports increased to over 68 t, to almost 140 t in 2005 and to almost 400 t in 2006. In 2007, however, reported exports fell to 273 t, and again to 159 t in 2008. The Thailand annual report 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. In 2005, Viet Nam reported exporting 100 kg to Switzerland which was confirmed as an import by Switzerland in 2006. Reported exports increased to over 24 t in 2006 with the main destinations being China, Europe and the Republic of Korea. Exports appear to have fallen to around two tonnes in 2007 and recovered a little to 5.5 t in 2008. Figure 9 shows the relative importance of the three main species from 1986 to 2008.

There have been small exports by Mexico of meat of *Crocodylus moreletii* amounting to 432 kg in 2000, 3,550 kg in 2002 and 1,000 kg in 2003. No trade in meat of this species has been reported subsequently. Apart from 50 kg reported as an export to Spain in 2002, the sole importer has been Japan.

Exports of meat from South American caiman have fluctuated considerably, with almost no trade being reported between 1998 and 2003, nor in 2008. However, in 2004, Colombia exported a small quantity to Macau and in 2005 a similar amount to China. Then, in 2006, they reported exports of 9.5 t to Taiwan, Province of China, followed by 110 t in 2007. Bolivia began with an export of 13 kg to United States in 2003 followed by 22.5 t in 2004. In 2005, the quantity increased to 68.7 t to Europe and the United States, and further to 82 t in 2006. However, in 2007, the volume dropped to 20 t and the destination changed to China. Argentina has reported exporting a few tonnes to the United Kingdom in 2006 and 2007.

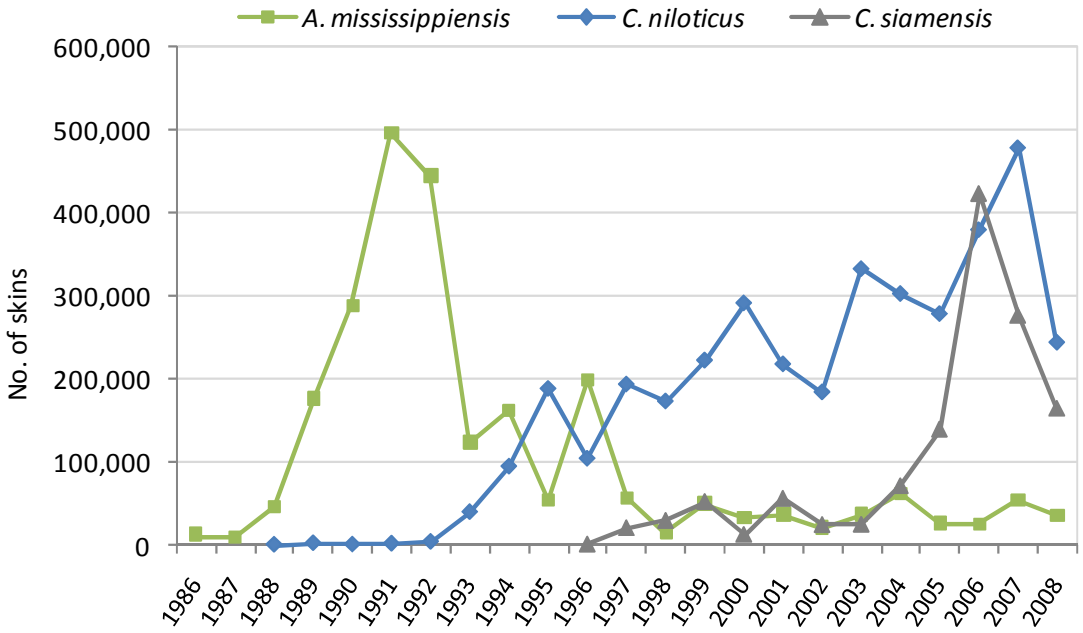


Figure 9. Comparison of exports of meat of *Alligator mississippiensis*, *Crocodylus niloticus*, and *C.siamensis*

b. Teeth

Australia is the world's foremost user of crocodile teeth and between 1999 and 2008 imported nearly 410,000. 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. Imports were 77,000 in 2003 but fell to 18,500 the following year. Since then, trade has gradually increased and amounted to over 47,000 in 2007. In 2008, the trade fell back to 19,105 from Singapore and Thailand.

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. This figure is not necessarily accurate, but it is occasionally used by UNEP-WCMC to identify

errors in that report; for example, where it is suspected that a decimal point may have been omitted. 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 considerably higher, as one would expect.

Table 10. Reported US dollar value of *Alligator mississippiensis* skins (per skin), 1997-2008

	1997	1998	1999	2000	2001	2002
Exports from USA	103.7	77.8	97.6	102.9	100.8	101.4
Re-imports by USA	143.0	116.3	140.0	179.4	169.5	108.6

	2003	2004	2005	2006	2007	2008
Exports from USA	106.4	112.5	142.6	177.9	232.9	242.2
Re-imports by USA	124.6	144.9	168.3	193.5	253.4	254.8

Table 11 compares the United States reported average value per skin of Colombian *Caiman crocodilus fuscus* imported directly from Colombia and via third countries. The source of re-exported skins varies from year to year, but the majority are imported directly from Colombia or via Singapore. The declared value of the direct imports from Colombia has remained at almost US$50 per skin between 2002 and 2008, and has generally been higher than the value of skins imported via Singapore.

Table 11. Reported US dollar value of Colombian *Caiman crocodilus fuscus* skins (per skin), 1998-2008

(Re-)Exporter	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	38.6	39.7	37.4	43.5	50.7	49.9	46.8	50.6	50.8	54.4	52.5
European Community	81.3	25.2	68.5	24.7	63.8	-	-	28.0	34.5	-	-
Mexico	-	52.4	43.5	49.1	41.5	38.0	-	97.8	31.2	50.0	36.3
Panama	27.1	-	20.2	59.2	-	54.4	-	-	-	-	-
Singapore	48.6	44.7	42.5	43.8	39.9	47.8	43.4	43.1	46.7	46.1	44.3
Switzerland	-	61.4	28.6	29.5	25.0	-	29.5	33.9	41.3	28.5	-
Thailand	48.6	49.4	45.8	52.2	56.5	32.6	54.0	53.8	62.0	63.0	-

Infractions of CITES

Information on seizures is supposed to be recorded in CITES annual reports but is usually omitted, 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. Indeed, many countries believe that seizures should be reported in their biennial report and not the annual report. 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. It should be noted that most of the data reflect the diligence of Customs officers inspecting tourist luggage and do not indicate problem areas for the crocodilian industry. In addition, many of the items seized on import are subsequently released to the importer when adequate permits have been obtained.

Of the more significant items reported in the last three years, the United States reported seizures of 20 caiman skins from Mexico, 34 kg of yacare skin pieces from Bolivia and 25 kg of unspecified derivatives of *C. siamensis* from Thailand in 2006. In 2007, the United States reported seizures of 200 *Caiman crocodilus fuscus* skins, originating in Colombia, from Thailand and 216 kg *Crocodylus porosus* meat from Australia. The 2008 United States annual report notes that 1,000 *Caiman crocodilus fuscus* skins from Colombia were seized, along with 35 of the same species imported via Mexico, and four shipments totalling 4,207 skins, again of Brown caiman originating in Colombia, from Singapore. There was also a seizure of 201 *Crocodylus niloticus* skins from South Africa.

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. CoP14) on Permits and certificates).
- 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 Nile crocodile 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 crocodilian 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 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 should contact Parties in June of each year to remind them of their reporting obligations under Article VIII, paragraphs 6 and 7.
- UNEP-WCMC would recommend that wherever possible, Parties report the actual quantities of skins being traded.

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