

# **WORLD TRADE IN CROCODILIAN SKINS 2005-2007**

Prepared as part of the International  
Alligator and Crocodile Trade Study

by

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## **Introduction**

This is the sixteenth report produced by UNEP-WCMC for the International Alligator and Crocodile Trade Study (IACTS) and examines the international trade in crocodilian skins from 1980 to 2007. As in the previous reports, the data used in this report 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. The present report is intended to update the earlier reports by detailed analysis of information for the years 2006 and 2007. It also attempts to identify problem areas and to recommend, where possible, workable solutions.

As in the IACTS reports for 2001 - 2006, this report presents information on trade levels in classic skins (alligators and true crocodiles) and caimans and also trade in other products such as live animals and meat.

## **Methods**

This report is based on an analysis of the annual reports submitted by the Parties to CITES for all years up to 2007, and if applicable, 2008. A list of annual reports for 2005-2007 that had been received at UNEP-WCMC at the time of writing is given in Table 1. In order to be comparable with previous IACTS reports, 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 mainly excluded. Wherever possible, data reported by the producer countries have been used in preference to that reported by importing countries because small differences in the manner of reporting, or 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 1995-2006, re-export trade has not been included in the estimation of annual production.

## **Limitations of data**

Late submission or complete failure to submit CITES annual reports continue to be the biggest problems in conducting trade studies using CITES annual report 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 however the situation appears to slipped back since then.

A further problem with annual reports is the basis on which they 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 they have 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 fail to provide any details concerning the basis on which their annual reports are compiled and although UNEP-WCMC has access to the export permits routinely sent by several Parties to the CITES Secretariat, few of these are currently from crocodilian exporting countries.

Most CITES annual reports are compiled on a shipment-by-shipment basis and many include the exporters' permit numbers. This allows for very accurate cross-checking of data, particularly where an export may be reported in one year and the import of the same shipment reported the following year, and enables potential reporting or typographical errors to be traced. In recent years only Switzerland, a significant importer of crocodilian skins, has failed to report in this way and for 2006, for the very first time, Switzerland's report was on a shipment-by-shipment basis.

All annual reports for the years up to 2007 should have been submitted by 31 October 2008 but, at the time of writing (March 2009), several reports that might contain important data have still not been received by the CITES Secretariat. These include Namibia (2007), Nicaragua (2006 and 2007) and Uganda (2006 and 2007) among the exporting countries and Switzerland (2007), a major importer. Furthermore, although the annual reports from Panama for 2007 and 2008 have been received they lack intelligible data. The potential effect of such omissions has been commented upon in the text.

**Table 1. CITES annual reports for 2005-2007 available for analysis at 30 June 2009**

Country	2005	2006	2007
Algeria	*	*	*
Antigua and Barbuda	-	*	-
Argentina	*	*	*
Aruba	-	-	*
Australia	*	*	*
Austria	*	*	*
Azerbaijan	*	*	*
Bahamas	*	*	*
Bangladesh	*	*	*
Barbados	*	*	*
Belarus	*	*	*
Belgium	*	*	*
Belize	*	*	-
Benin	*	-	-
Bhutan	*	-	-
Bolivia	*	*	*
Brazil	*	*	*
Bulgaria	*	*	*
Burkina Faso	*	*	*
Cambodia	*	*	*
Cameroon	*	*	-
Canada	*	*	-
Central African Republic	*	*	*
Chile	*	*	*
China	*	*	*
Colombia	*	*	*
Comoros	*	-	-
Congo	*	*	-
Costa Rica	*	*	*
Côte d'Ivoire	*	-	-
Croatia	-	*	-
Cuba	*	*	-
Cyprus	*	*	*
Czech Republic	*	*	*
Democratic Republic of the Congo	*	*	*
Denmark	*	*	*
Dominican Republic	-	*	*
Ecuador	*	-	-
Egypt	-	*	-
Eritrea	*	-	-
Estonia	*	*	*
Ethiopia	*	*	-
Fiji	*	*	-
Finland	*	*	*
France	*	*	*

Country	2005	2006	2007
French Guiana	*	*	*
French Polynesia	*	*	*
Gabon	*	-	*
Georgia	*	*	*
Germany	*	*	*
Ghana	*	-	*
Greece	*	*	*
Greenland	*	*	-
Guadeloupe	*	*	*
Guatemala	*	-	*
Guinea	*	*	-
Guinea Bissau	*	*	*
Guyana	*	*	*
Honduras	*	*	*
Hong Kong, SAR	*	*	*
Hungary	*	*	*
India	*	*	*
Indonesia	*	*	*
Iran	*	*	-
Ireland	*	*	*
Israel	*	-	*
Italy	*	*	*
Jamaica	*	*	*
Japan	*	*	*
Jordan	*	*	*
Kazakhstan	*	*	*
Kenya	*	*	*
Kuwait	*	*	*
Latvia	*	*	*
Lesotho	*	*	*
Libyan Arab Jamahiriya	*	*	-
Liechtenstein	*	*	-
Lithuania	*	*	*
Luxembourg	*	*	*
Macao, SAR	*	*	*
Macedonia	*	*	*
Madagascar	*	*	*
Malawi	*	*	*
Malaysia	*	*	*
Malta	*	*	*
Martinique	*	*	*
Mauritius	*	*	*
Mexico	*	*	*
Moldova	*	*	*
Monaco	*	*	-
Mongolia	*	*	*
Montenegro	*	*	*
Morocco	*	*	*
Mozambique	*	*	*
Namibia	*	*	-
Nepal	*	*	*
Netherlands	*	*	*
New Caledonia	*	*	*
New Zealand	*	*	*
Nicaragua	*	-	-
Niger	*	*	-
Nigeria	-	*	*

Country	2005	2006	2007
Norway	*	*	*
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	*	*	-
Saint Vincent and the Grenadines	*	-	-
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	*	*	-
United States of America	*	*	*
Uruguay	*	*	*
Uzbekistan	*	*	*
Vanuatu	*	*	*
Venezuela	*	*	*
Viet Nam	*	*	*
Zambia	*	*	*
Zimbabwe	*	*	*

\* = report available; - = report not received; ! = report received but data intelligible; no symbol denotes that the country was not party to CITES

The accuracy of the data provided in CITES annual reports is a further limitation and in previous IACTS reports it has been noted that occasionally skins have been reported 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 close cross matching of import data with the original export permit information and the results are discussed in the various species accounts.

## Species accounts

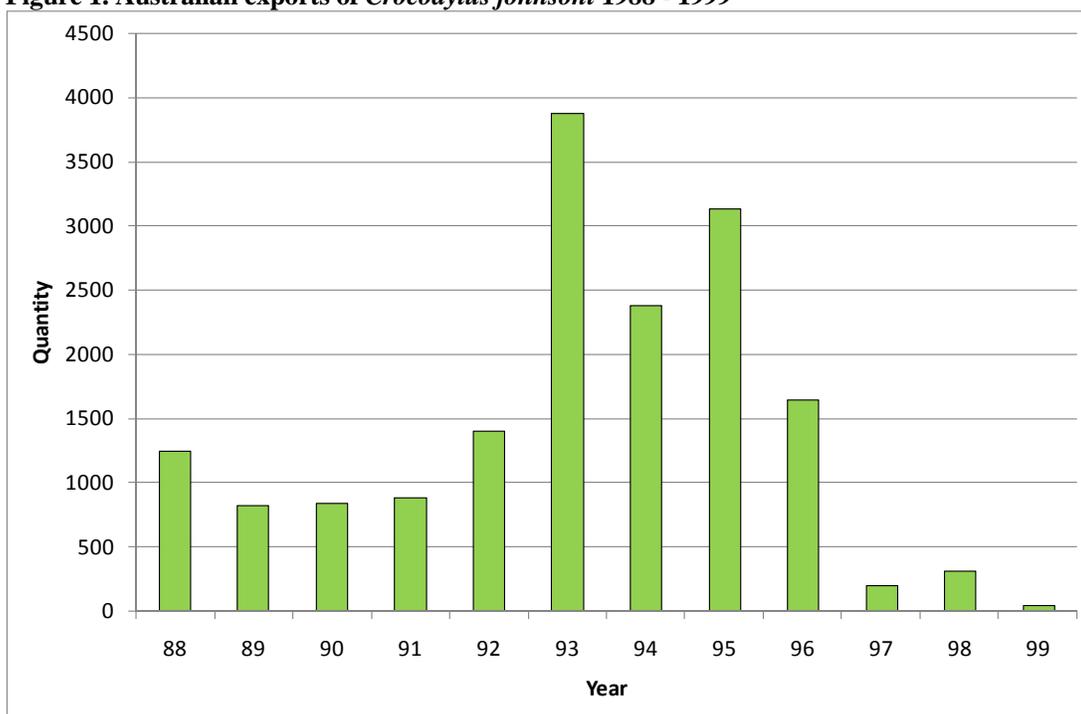
### *Crocodylus acutus* American crocodile

Colombia has four farms registered with CITES for production of this species and reported exporting 130 skins from captive-bred animals to France in 2003. This trade was confirmed by the importer. A further 30 skins were reported as exports to France by Colombia in 2004 but this was not confirmed by France. In 2005, Colombia reported exporting 98 skins to Japan and a further 30 to Singapore. Both of these shipments were confirmed by the importing countries so it seems likely that the permits for the 30 skins destined for France in 2004 were not used and the skins went to Singapore instead. In 2006 Colombia reported exporting only nine skins, to France, Italy and Spain, and in 2007 a further 240 skins to Italy and 10 to Belgium, although the latter was reported as manufactured products to Belgium.

Honduras has one registered operation producing this species and it appears the first reported trade was of 500 skins imported by Japan in 2003. The export was not reported by Honduras. This was followed by an export 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 have been confirmed by the importers. An incomplete 2008 annual report has already been received from Honduras and indicates an increase in exports to just over 1000 skins, mostly to Panama.

## *Crocodylus johnsoni* Australian freshwater crocodile

**Figure 1. Australian exports of *Crocodylus johnsoni* 1988 - 1999**

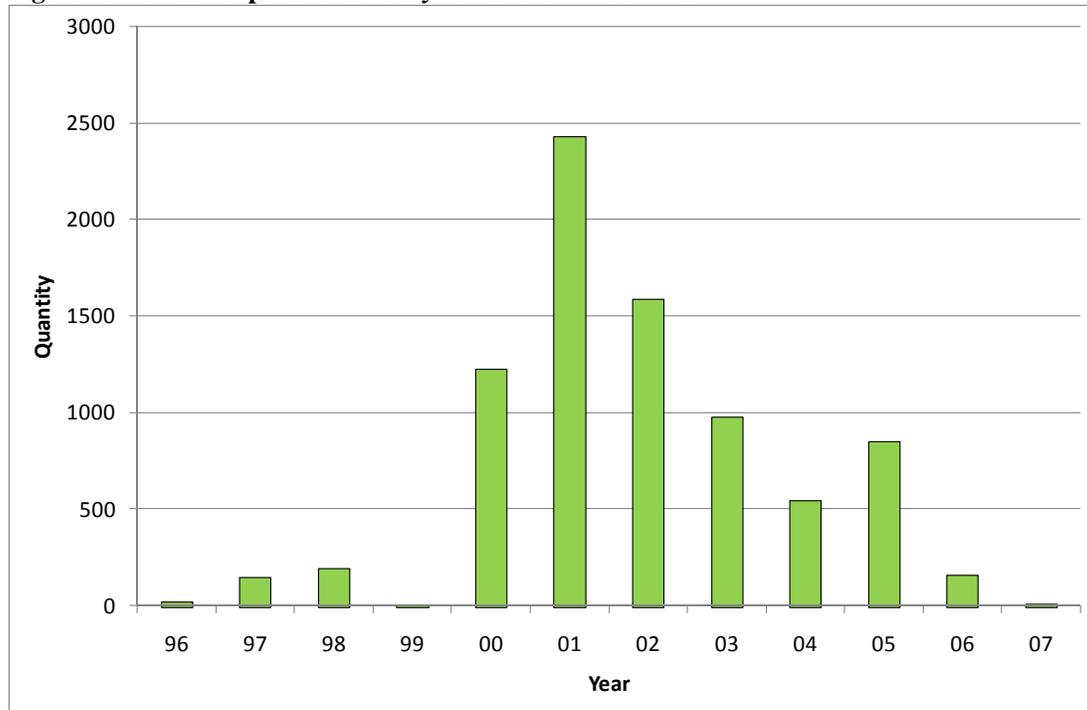


As can be seen in Figure 1, exports from Australia peaked at 3875 in 1993, remained high until 1996 and then fell to insignificant levels. No direct exports in skins of this species were reported in 2001 or 2004 and only two, exported to Japan, in 2002. Although Japan reported the import of 184 skins 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 1594 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.

## *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 2430 in 2001. Exports have subsequently decreased to 1591 skins in 2002 and have remained below 1000 per annum since then. According to Mexican data, 549 skins were exported in 2004, 855 in 2005 and a mere 158 in 2006. The 2007 report from Mexico indicates that only 11 skins were exported in that year.

**Figure 2. Mexican exports of *Crocodylus moreletii* 1996 – 2007**



### ***Crocodylus niloticus* Nile crocodile**

For the purposes of this report, bellies, skins and hornbacks have been treated as representing entire skins while ‘backskins’ have been treated as pieces rather than whole skins. A summary of the trade data from 2000-2007 can be found in Table 2.

#### **Exporters**

##### **1. Range States**

**Botswana:** although Botswana reported exports of over 9000 skins between 1992 and 1994, there have been no commercial exports of skins between 1997 and 2007 apart from 152 skins from captive-bred individuals that South Africa reported importing in 2001. Although at the time of writing no reports for 2006 or 2007 have been received from Botswana, no countries report import of skins from Botswana.

**Central African Republic:** apart from an import of 35 skins reported by France in 1986 there have been no commercial exports.

**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 apparently owned and managed by the Ethiopian Wildlife Conservation Organisation (EWCO) which also acts as both the CITES Management and Scientific Authorities. The ranch is not currently registered with the CITES Secretariat. Production appears to be erratic and there is considerable confusion 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 1354 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 sole importer between 2002 and 2004 was the United Kingdom but exports to France began in 2005 and France appears to have been the only importer in 2006. Data recently provided by EWCO have been used in Table 2 for the period 2000-2006 in preference to Ethiopian annual report data. The Ethiopian annual report for 2007 was incomplete but France reported importing 594 skins.

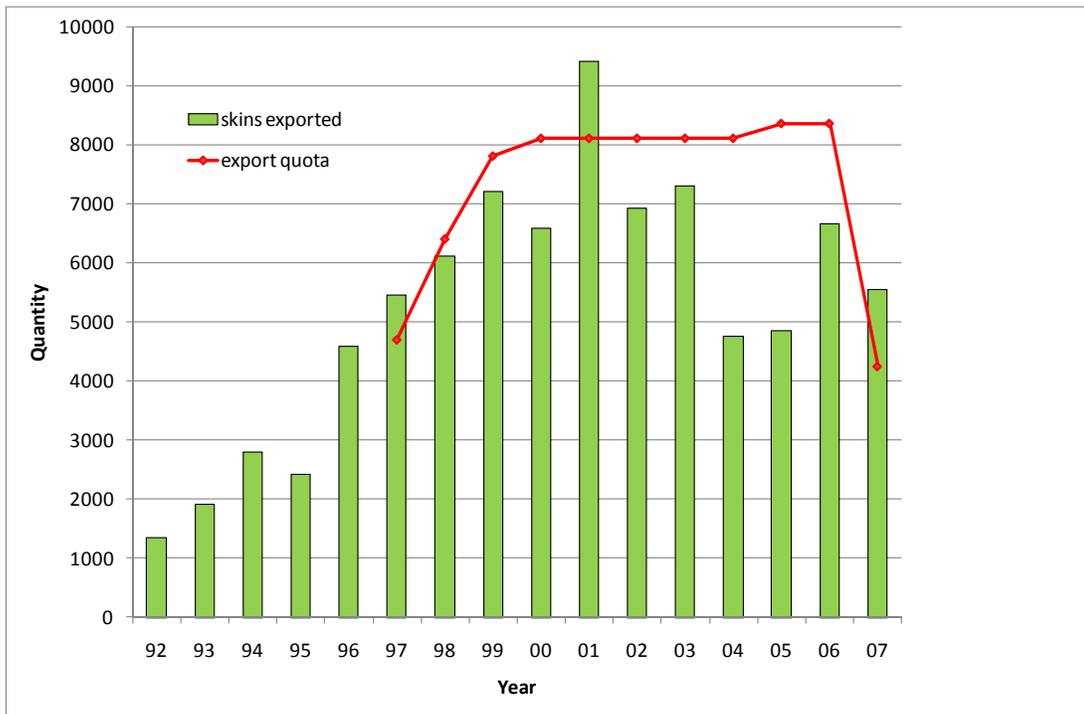
**Guinea:** Guinea has not reported exporting skins since 1991, nor have there been any reported imports from that country apart from a seizure of 100 skins reported by Spain in 1995.

**Kenya:** Singapore reported importing 1687 skins from Kenya in 2003 however no report was received from Kenya for that year. Kenya reported exports of 2850 skins to Germany and Singapore in 2004 the trade being confirmed by the importers. In 2005 Kenya reported exporting one shipment of 400 skins to Germany and 12 shipments totalling 10,550 skins to Singapore. Germany did not report the import in either 2005 or 2006 and Singapore did not report importing one shipment totalling 1000 skins, so it seems likely that the true exports from Kenya were 9550. In 2006 Kenya reported exporting 8710 skins and in 2007 a further 6354, all to Singapore. All trade in 2004 was reported to be from ranched animals whereas for 2005 and 2006 it was reported to be from captive-bred animals. In 2007 it was roughly half ranched, half captive-bred, which suggests the sources may be considered interchangeable.

**Liberia:** a few commercial exports to France, amounting to almost 1500 skins, were reported between 1981 and 1984 but none since.

**Madagascar:** Madagascar's exports since 1992 are shown in Figure 3 below and indicate a steady increase until 1999. Exports fell in 2000 but some of the skins from that year's quota appear to have been exported in 2001. If this was the case then around 7000 skins were exported each year between 1999 and 2003. Reported exports fell to 4760 in 2004 and only increased by a further 90 skins in 2005. In 2006 exports increased to 6600 but fell back to 5500 in 2007. An export quota for crocodile skins was introduced in 1997.

**Figure 3. Exports of *Crocodylus niloticus* skins from Madagascar 1992 - 2007**



**Malawi:** In 2005 Malawi reported exporting 637 skins in four shipments to France, Germany and South Africa. However the importing countries reported those shipments plus another four to give a total of 1038 skins. Ranched skins accounted for 660 of these, wild skins the remainder. 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 1287. However inspection of the Malawi annual report reveals that there is an entry missing and there was a shipment reported by Germany that wasn't reported by Malawi so it is possible that real exports were of 1350 skins of which 215 were from wild harvest, the remainder ranched.

**Mozambique:** In 2005 Mozambique reported exporting 834 skins to Mexico (confirmed by Mexico) and 322 skins (of which 160 were from wild collected specimens, the remainder ranched) to Singapore. Singapore did not report the import. In 2006 Mozambique reported the export of three shipments of ranched skins, totalling 2000, to Singapore – this 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 who confirmed the transaction.

**Namibia:** In 2005, Namibia reported exporting 400 skins to South Africa from captive-bred animals presumably from the crocodile ranching operation registered with the CITES Secretariat. 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 but no imports of crocodile skins from Namibia have been reported by other countries.

**Nigeria:** as noted in previous IACTS reports, 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.

**Somalia:** as noted in previous IACTS reports, a total of 2189 skins were reported as imports by Italy and Japan in 1980 and 1981 but no further commercial shipments have been reported since.

**South Africa:** In 2005 exports of 25,524 skins were reported but a further 9662 skins from animals grown on from juveniles imported from Mozambique in 2004 were re-exported. Almost all of South Africa's direct exports of skins were reported to be from captive-bred animals although 631 skins were reported as being wild-sourced. The importers confirmed this information. In 2006 South Africa reported direct exports of 24,089 skins, all but 300 from captive-bred animals. However a further 8849 skins from animals bred in Mozambique were exported, as were 1265 skins from animals originating in Zimbabwe. In 2007 South Africa exported reported exporting 30,514 skins plus another 5500 from animals bred in Mozambique. Note that all these additional skins were from animals exported as hatchlings and juveniles by Mozambique so do not show in Mozambique's skin export data. It should 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 mostly exported directly by the producer countries.

**Sudan:** as previously reported in IACTS 2004, the only recorded commercial trade involving Sudan was in 1992 when Egypt reported importing 7900 skins. However, there have been no records of re-exports of Sudanese crocodile skins by Egypt and it seems likely that they may have actually been skins of Nile monitor, *Varanus niloticus*, and misreported by Egypt.

**Togo:** as noted in previous IACTS reports, no trade in skins has been reported since the early 1980s when 6377 were exported to France between 1982 and 1983.

**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 and a check of permit numbers revealed that it was possible that Uganda's annual report for 2005 was incomplete, the date of the last permit issuance being September 2005. No report has been received from Uganda for 2006 or 2007 but the Republic of Korea reported importing 300 skins in 2006. No further imports of skins have been reported. All reported trade was in skins from captive-bred individuals.

**United Republic of Tanzania:** Tanzania claims that their annual report represents actual trade however serious doubt has emerged that Tanzania has included all of their crocodile export data in their annual reports since 2002 so the figures in this report have been taken from the reports of the major importing countries, notably Singapore. No report has been received from Tanzania for 2007 although comparison of export permit numbers reported by Tanzania for 2006 with those reported by Singapore for 2006 and 2007 suggest that the Tanzanian data may include exports in both years. The data are shown in Table 2 and all skins were of wild origin

**Zambia:** In 2005, Zambia reported exports of 22,717 skins compared with 32,572 reported by importing countries on permits issued by Zambia in that year. A close examination of the data, carried out at the export permit level, suggests that Zambia's 2005 annual report is incomplete and a further 10,467 skins reported as imports by Japan and Singapore means that the true figure was probably nearer 33,184. In 2006 Zambia reported exports of 39,804 skins, a figure closely matched by importers data. In 2007 Zambia reported exporting 37,305 skins but again France and Singapore reported trade on permits that were not in Zambia's annual report. Assuming this trade did occur then the probable level of export from Zambia in 2007 was 44,132. All skins from Zambia are reported to come from ranching operations

**Zimbabwe:** In 2005 the Crocodile Farmers Association of Zimbabwe (CFAZ) reported exports of 63,146 skins (compared to 70,416 reported by the CITES Management Authority) and a further 71,616 skins in 2006 (compared to 80,873 reported by the Management Authority). These figures have been used in Table 2 below. No data was available from CFAZ for 2007 and the industry in Zimbabwe has been going through severe changes. Annual report data indicated a total of 54,810

skins exported in 2007 but a comparison with importers data suggested several shipments had not been reported by Zimbabwe. Including these missing data brought the total exports to 59,409, a significant decrease from the previous year and perhaps an indication of the troubled times in that country.

## 2. Other countries

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

**Israel:** reported exporting 699 skins to France in 2002, a figure confirmed by the importer, No further trade has been reported for 2003 – 2007.

**Mauritius:** first reported exporting skins (30) from captive-bred individuals in 2000. This gradually increased to 400 in 2004 but fell back to 150 in 2005. In 2006 Mauritius reported exporting 184 skins and in 2007 a further 231. The importers have been Madagascar, Singapore and Zimbabwe.

**Table 2. Reported trade in *Crocodylus niloticus* skins, 2000-2007**

Country	2000	2001	2002	2003	2004	2005	2006	2007
Botswana	0	152	0	0	0	0	0	0
Brazil	1477	50	0	1	44	0	0	0
Ethiopia	995	82	220	900	300	347	662	594*
Israel	811*	2289*	699	0	0	0	0	0
Kenya	3460	3713*	2317	1687*	2850	9550	8710	6354
Madagascar	5506	9408	6936	7300	4760	4850	6660	5500
Malawi	360*	1256	120*	301	100*	1038*	698	1350*
Mauritius	30	93	178	118	400	150	184	231
Mozambique	718	477	293	3160	0	1156	2000	179
Namibia	100	0	0	0	0	400	305	0
South Africa	29,968	33,335	45,755	31,321	35,760	35,486	34,203	36,014
Uganda	508*	900	2*	600	600	600*	300*	0
U.R.Tanzania	1302	1498	1259*	1439*	1067*	1584*	1100*	1556*
Zambia	19,906*	20,887	22,259	28,019	26,353	33,184*	39,804	44,132*
Zimbabwe	74,567* 82,168♦	59,096* 76,657♦	69,075* 79,932♦	70,378 73,707♦	60,185 68,263♦	70,416 63,146♦	80,873 71,616♦	59,409*
<b>Total</b>	147,311	150,797	159,970	148,553	140,497	151,491	166,242	153,969

Key: \* Figure derived partly or in full from import data

♦ Data supplied by CFAZ

### *Crocodylus novaeguineae* New Guinea crocodile

Table 3 shows the total number of skins of this species exported by the main producers, Indonesia and Papua New Guinea, between 1999 and 2007.

**Indonesia:** exports have fluctuated in recent years from a low of 6574 in 1999 to a peak of 16,575 in 2006. Exports have been increasing steadily since 2003. The main destinations 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 fell back to just over 60 per cent in 2006 and 2007.

**Papua New Guinea:** exports peaked with 29,315 skins in 2004 but have fallen back since then. 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 per cent of the production, increasing to 93 per cent in 2001 and to 100 per cent in 2002 and 2003. In 2004 only four skins of animals bred in captivity were reported and none in subsequent years.

**Table 3. Reported trade in *Crocodylus novaeguineae* skins, 1999-2007**

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007
Indonesia	6574	7215	9946	11,951	8826	10,481	13,585	16,575	12,759
PNG	15,617	16,018	20,688	18,798	18,482	29,315	18,417	22,070	15,904
<b>Total</b>	22,191	23,233	30,634	30,749	27,308	39,796	32,002	38,645	28,663

Key: \* Figure derived from import data

### *Crocodylus porosus* Saltwater crocodile

Table 4 shows the total number of skins of this species exported by the main producers, Australia, Indonesia, Malaysia, Papua New Guinea, Singapore and Thailand between 1999 and 2007.

**Australia:** comparison of data reported by Australia with that reported by importing countries suggests that since 2004 Australia has been underreporting the quantities of skins exported. The data for the years 2004 onwards in Table 4 below have thus been taken from reports of the importing countries. Seventy per cent of the exports in 2005 were reported to be from captive-bred individuals with the remainder coming from ranching operations. Similar figures were reported in 2006 although in 2007 the amount reported as coming from ranching operations had increased to 42 per cent. 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:** exports of 4714 skins were reported in 2005 but in 2006 these decreased to 3825. In 2007 exports increased again to 5151. 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, 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. It seems likely that these sources are interchangeable.

**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, 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 4 rather than the inconsistent data from Malaysia.

**Papua New Guinea (PNG)** reported exporting 10,222 skins in 2005, a slight decrease over 2004, and exports in 2006 were almost identical at 10,208. Exports in 2007, at 12,675, were the highest in the last decade. 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.

**Singapore** reported commercial exports of 538 skins from registered captive-breeding operations (of which there are two) in 2005, 1712 in 2006 and 1653 in 2007. Most of the skins went to France and Italy with a small number going to Japan.

**Thailand:** reported exporting 500 skins in 2005, 600 in 2006 and 3149 in 2007, all from animals bred in captivity. There are 12 CITES-registered captive-breeding operations for this species in Thailand and the 2007 figures may suggest a significant increase in production.

**Table 4. Reported trade in *Crocodylus porosus* skins, 1999-2007**

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007
Australia	5048	13,296	11,849	10,423*	14,744*	12,741*	20,409*	16,123*	21,314*
Indonesia	1087	3172	3456	3277	2732	3968	4714	3825	5151
Malaysia	320*	559*	675*	662*	618*	1450*	1058*	1684*	1273*
PNG	9396	8336	10,676	9332	8000	11,043	10,222	10,208	12,675
Singapore	60	438	762	584	470	693*	538	1712	1653
Thailand	60	0	805	0	0	300	500	600	3149
<b>Total</b>	15,971	25,791	28,223	24,278	26,564	30,728	37,441	34,152	45,215

Key: \* Figure wholly or partly derived from import data

### ***Crocodylus rhombifer* Cuban crocodile**

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

### ***Crocodylus siamensis* Siamese crocodile**

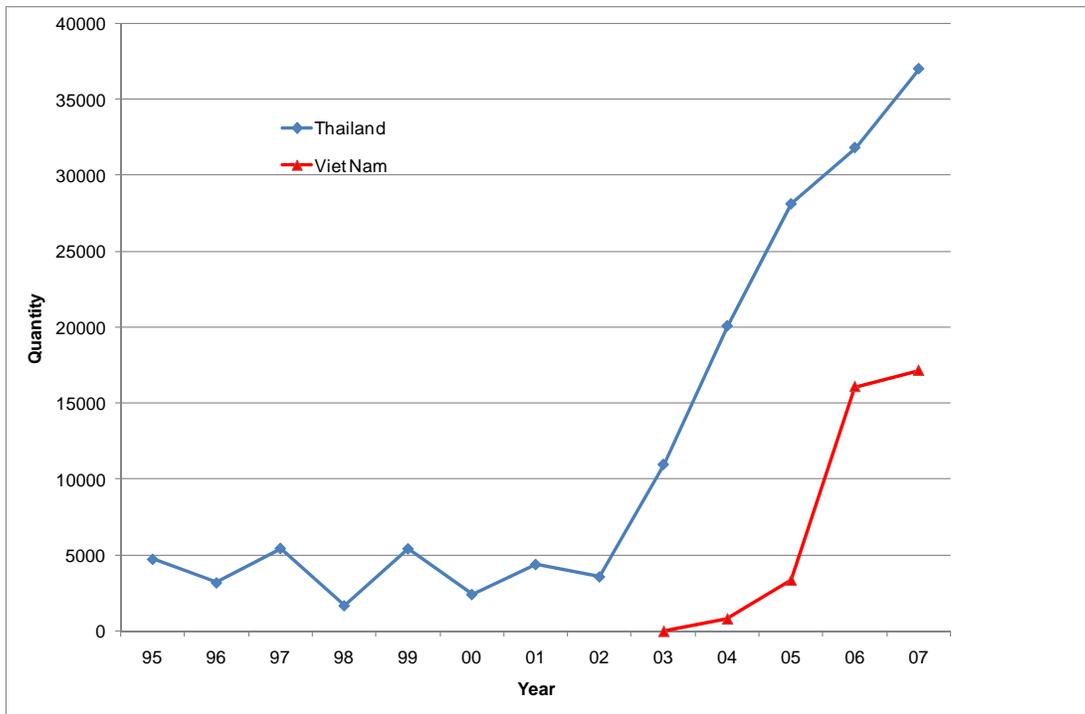
**Cambodia:** Singapore reported importing 30 skins from Cambodia in 2001, the first reported trade involving that country. The skins were subsequently re-exported to Japan in 2002 but no further trade in skins from that country was reported until 2007 when Cambodia reported exporting 100 skins to Thailand from a registered captive breeding operation. Cambodia has six crocodile farms registered with the CITES Secretariat for the commercial production of this species. Preliminary data for 2008 suggest increased exports to 1300 in that year.

**Thailand:** has 22 crocodile farms registered with the CITES Secretariat for commercial production. Reported exports were less than 6000 skins annually between 1995 and 2002 but then increased steadily from 10,982 in 2003, to 37,041 in 2007 (see Figure 4). The main importer in 2006 was 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 3371 skins being exported in 2005. The majority of these went to Japan with smaller quantities going to Australia and Italy. In 2006 this increased to 16,125 and again to 17,190 in

2007 with Japan, Singapore, the Republic of Korea, France and Italy being the main destinations. Viet Nam has five farms registered with the CITES Secretariat for production of this species

**Figure 4. Exports of *Crocodylus siamensis* skins from Thailand and Viet Nam 1995 – 2007**



### ***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 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 is involved.

### ***Alligator mississippiensis* American alligator**

Only gross export data reported by the United States have been used for this analysis as it has been demonstrated previously that using data reported by importing countries can lead to a significant overestimate of trade volume.

Figure 5 shows reported exports between 1986 and 2007 and indicates a steady increase from around 30,000 skins in 1986 to 210,000 in 1994. Exports then appear to have steadied during the period from 1995 to 2000 and then increased by almost 40 per cent to 343,110 in 2001. Although exports fell back to 237,840 in 2002 they picked up again the following year and were consistently around the 350,000-level between 2003 and 2005. In 2006 there was another increase to 421,000 skins but in 2007 a sharp decline to pre-2003 levels. 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.

**Table 5. Exports of *Alligator mississippiensis* reported by USA 1988-2007**

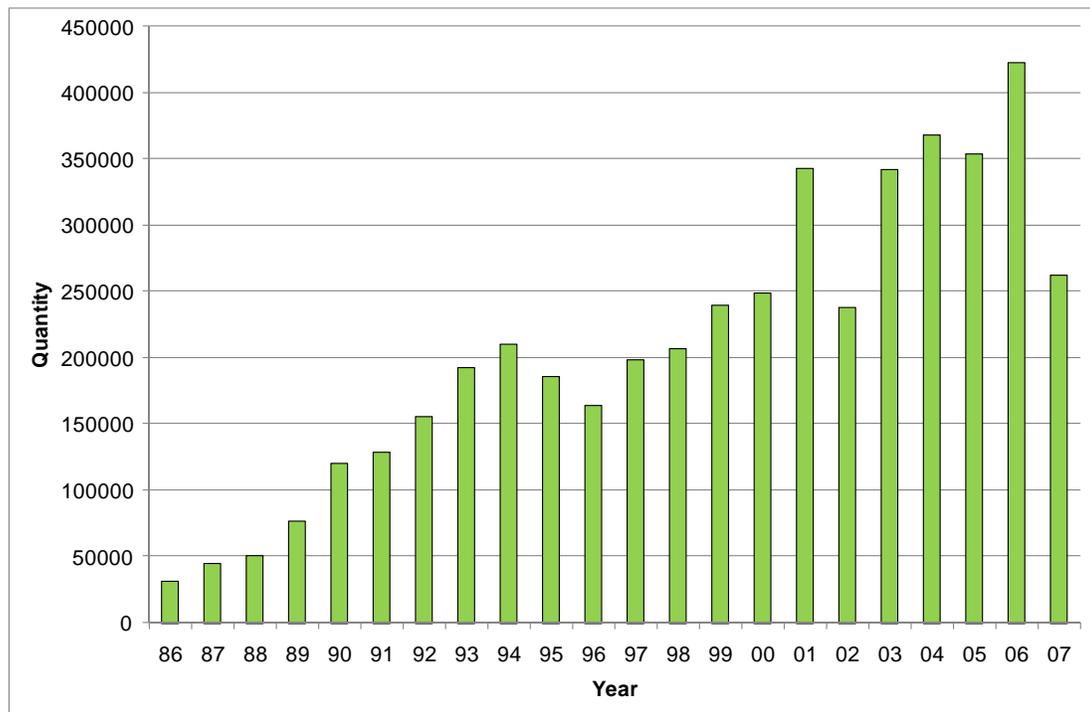
1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
50,303	76,963	120,419	128,447	155,264	192,286	210,236	185,929	163,936	198,649
1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
206,620	239,519	248,922	343,110	237,840	341,734	368,409	356,393	421,220	262,133

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 more correct 'R'. 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 appears to have continued up to 2004 where 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 year, 2006 and 2007 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 crocodylian populations transferred from Appendix I to Appendix II subject to ranching.

This species is also bred in captivity in Israel who 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. Gross exports of *A. mississippiensis* skins from the United States 1986-2007**



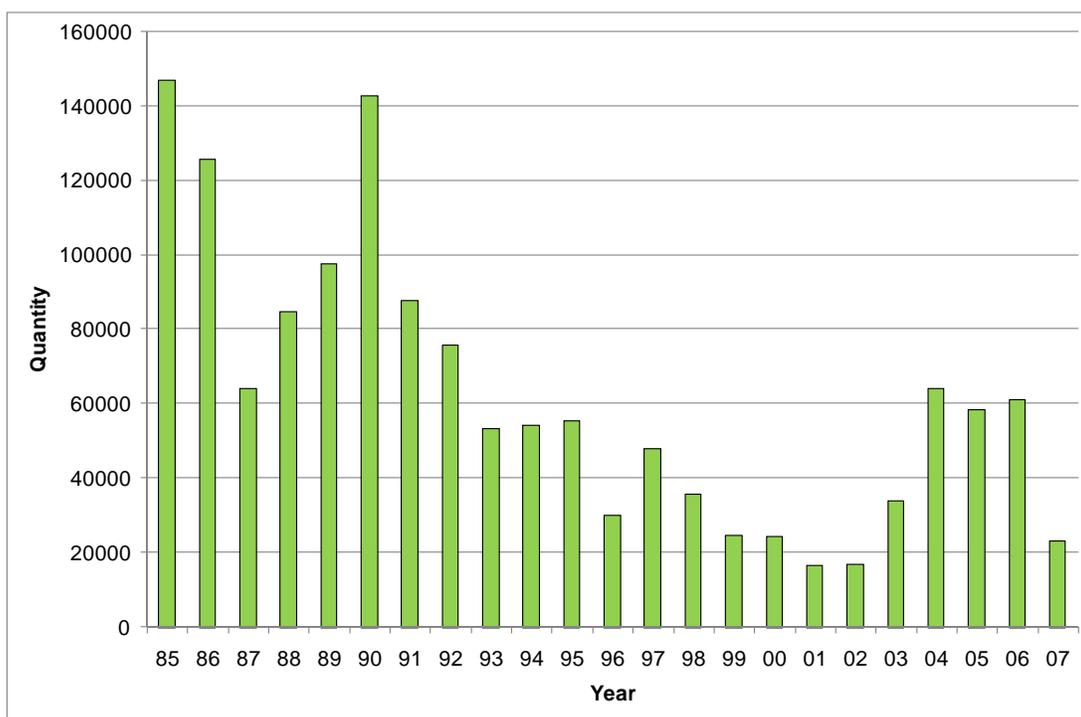
### ***Caiman crocodilus crocodilus* Spectacled caiman**

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 2003 exports began to pick up again and Venezuela reported exports of 33,942 skins that year. Between 2004 and 2006 Venezuela has exported around 60,000 skins annually, however exports plunged to less than half that level in 2007. The quantity of skins exported annually from Venezuela since 1985 is shown in Figure 6 below.

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 2301 skins reported by Guyana in 2005. This again increased to 3720 in 2006, mostly going to Panama, but in 2007 Guyana reported exporting a total of 16,707 skins, the majority going to Mexico but smaller quantities going to Panama, Republic of Korea and Thailand.

Colombia also farms small numbers and exports amounted to 4431 in 2005, 4990 in 2006 and 4986 in 2007; all were reported to be from animals bred in captivity.

**Figure 6. Exports of *Caiman crocodilus crocodilus* skins from Venezuela 1985-2007**



### ***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 and 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 and 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 reported exports fell to 668,000 and reported exports from Colombia between 1990 and 2007 can be seen in Figure 7. Details of the countries reportedly exporting this species from 1999 to 2007 are shown in Table 6.

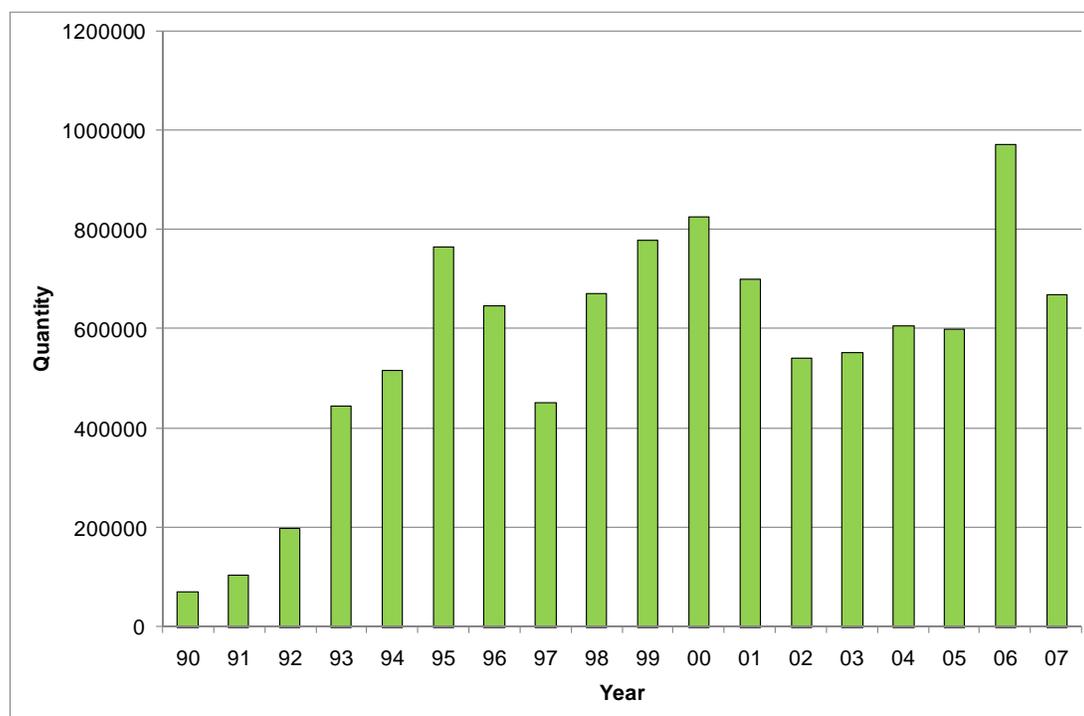
**Table 6. Reported trade in *Caiman crocodilus fuscus* skins, 1999-2007**

Exporter	1999	2000	2001	2002	2003	2004	2005	2006	2007
Colombia	777,529	824,303	698,413	540,579	552,219	605,841	599,527	970,731	668,076
Nicaragua	250	6440	0	0	0	0	0	0	0
Panama	10	10,250	11,700	11,498	19,840	15,850	3696*	2310*	2752*
<b>Total</b>	<b>777,791</b>	<b>840,993</b>	<b>710,113</b>	<b>552,077</b>	<b>572,059</b>	<b>621,691</b>	<b>603,223</b>	<b>972,941</b>	<b>670,828</b>

Key: \* Figure derived from import data.

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 6440 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 and can be seen in Table 6 above.

**Figure 7. Exports of *Caiman crocodilus fuscus* skins from Colombia 1990-2007**



Singapore's imports of Colombia's skin production have fluctuated between 47 and 56 per cent between 2003 and 2007 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

2007. Direct exports to Thailand have decreased steadily from 30 per cent in 1997 to around 6 per cent between 2004 and 2007.

### *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 2752 with most of the skins going to Mexico (56 per cent) and Italy (36 per cent). Exports then fell to 1652 in 2006 and further to 1125 in 2007; 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

Table 7 shows the fluctuations in exports of *C. yacare* skins from the major producing countries between 1993 and 2006. Trade data for earlier years was presented in IACTS reports 2000 and 2002.

**Argentina:** reported exports began in 2004 with one skin from a ranch going to Hong Kong. This was followed in 2005 by 1291 skins going to Mexico, Singapore and the United States. Exports have increased steadily since then and amounted to 6083 skins in 2007, all from ranching operations.

**Bolivia:** reported exports of 28,170 skins in 2001 but the figures increased significantly to 63,725 skins in 2002. Subsequent exports have fluctuated between a low figure of 34,878 in 2004 and a high of 51,330 in 2005.

**Brazil:** reported exports of 6048 skins in 2002, 12,851 in 2003 and 7004 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. All skins were from captive-breeding operations.

**Paraguay:** regular exports of wild-collected skins have occurred since 1994. Paraguay reported exports of 2980 skins in 2001, 9038 in 2002 and 4409 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.

**Table 7. Reported trade in *Caiman yacare* skins, 1994-2007**

Exporter	1994	1995	1996	1997	1998	1999	2000
Argentina	0	0	0	0	0	0	0
Bolivia	0	0	0	15,961	1757	0	4116*
Brazil	43,573	366	536	4961	295	615	1763
Paraguay	5466	17,206	725	503	4445	0	9750
<b>Total</b>	<b>49,039</b>	<b>17,572</b>	<b>1261</b>	<b>21,155</b>	<b>6497</b>	<b>615</b>	<b>15,629</b>

Exporter	2001	2002	2003	2004	2005	2006	2007
Argentina	0	0	0	1	1291	2883	6083
Bolivia	28,170	63,725	43,028	34,878	51,330	44,443	49,115
Brazil	978	6048	12,851	7004	620*	3173*	10,254*
Paraguay	2980	9038	4409	0	0	0	0
<b>Total</b>	<b>32,128</b>	<b>78,811</b>	<b>60,288</b>	<b>41,882</b>	<b>53,241</b>	<b>50,499</b>	<b>65,452</b>

Key: \* Figure derived from import data

## Other Species

There have been no reported commercial exports from origin countries between 2000 and 2007 of skins of the following species: *Crocodylus cataphractus*, *C. intermedius*, *C. palustris*, *Alligator sinensis*, *Melanosuchus niger*, *Palaeosuchus 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 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. Previous IACTS reports have noted that the continued growth of the crocodylian farming industry would mean that such exports would continue for the time being.

Live crocodylians are traded for many reasons. Enthusiasts popularly keep young animals 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 were limited exports (< 50 per annum) from the United States of America during the period under study, mostly destined for circuses and zoos.

### *Alligator sinensis*

In 2006 China reported exporting 32 animals to Spain and importing 12 from the United States and in 2007 a further 25 to Spain. All animals traded were captive-bred specimens.

### *Caiman crocodilus*

**Guyana** reported exporting 4087 animals in 2005, 3227 in 2006 and 1612 in 2007, all presumably destined for the pet industry. All were wild-caught and the main destinations were Europe, Japan and North America.

**Suriname** used to regularly export wild-caught animals for the pet industry although there was no reported trade in live caimans in 2005. No report has been received from Suriname for 2006 and 2007 and importer records suggest a low level of trade (140 in 2006, 10 so far for 2007).

**Venezuela** reported exporting 2300 *Caiman crocodilus crocodilus* in 2005, 4650 in 2006 and 4500 in 2007. All were reported to be of ranched stock or captive-bred.

### *Caiman yacare*

In 2006 Denmark reported importing 8 ranched animals from Argentina.

### *Melanosuchus niger*

Fifteen captive-bred specimens were exported from Ecuador to Denmark in 2004 but no trade has been reported subsequently.

### *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. The animals all appear to be for the pet industry with the main importing country being the United States. Smaller quantities go to Canada, Europe, Japan and the Russian Federation.

### *Palaeosuchus trigonatus*

Similar to *P. palpebrosus*, Guyana has an export quota of 1000 live wild specimens annually and reported exports of 293 in 2005, 428 in 2006 and 575 in 2007. 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 johnsoni*

The only recent trade has been of animals going from Germany to the United States in 2005 and 2006 for display purposes.

### *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 mainly from the neighbouring range States of Botswana, Mozambique and Namibia. Although 2003 saw the first major import from Kenya, this has not been repeated subsequently. Details are shown in Table 8.

**Table 8. South Africa's imports of live *Crocodylus niloticus* 1998-2007**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Botswana	2050	3827	3300	3670	720	0	0	0	0	0
Kenya	0	0	0	0	0	4000	0	0	0	0
Mozambique	4000	0	49	0	7000	5600	25,000	24,200	29,000	31,200
Namibia	2150	0	2603	1000	1100	0	1000	0	0	0
Zimbabwe	0	0	0	0	50	6	0	0	0	0
Total	8200	3827	5952	4670	8870	9606	26,000	24,200	29,000	31,200

In 2006 Mozambique reported exports of 29,000 animals to South Africa and a further 20,000 to Zimbabwe, and in 2007 a further 31,200 to South Africa and 35,000 to Zimbabwe. The 2008 annual report has already been received from Mozambique and indicates total exports of 91,000 animals, all reported as being ranched, to South Africa (61,000) and Zimbabwe (30,000).

### *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 five from Singapore, Spain 10 from Malaysia and the United States 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 the only exporter was Thailand who reported exporting one to Germany, 19 to Japan and two to Viet Nam.

### *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 405,000 live specimens from these countries in the ten-year period to 2007. Thailand has also exported over 7400 live animals to Cambodia, Egypt, Hong Kong, Japan, Malaysia, Philippines, the Republic of Korea, Taiwan, Province of China, and Viet Nam since 2005. As noted in the section on skins, Cambodia has six crocodile farms, and Thailand 22, registered with the CITES Secretariat for the commercial production of this species

**Table 9. China's import trade in live *Crocodylus siamensis* 1998-2007**

Exporter	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Cambodia	0	0	13,000	16,572	34,809	640	5000	0	0	0
Thailand	5078	44,622	26,475	13,179	10,898	17,300	30,250	23,696	58,793	47,180
Viet Nam	0	0	0	0	0	7700	3200	9300	13,000	24,050
Total	5078	44,622	39,475	29,751	45,977	25,640	38,450	32,996	71,793	71,230

## Trade in other by-products

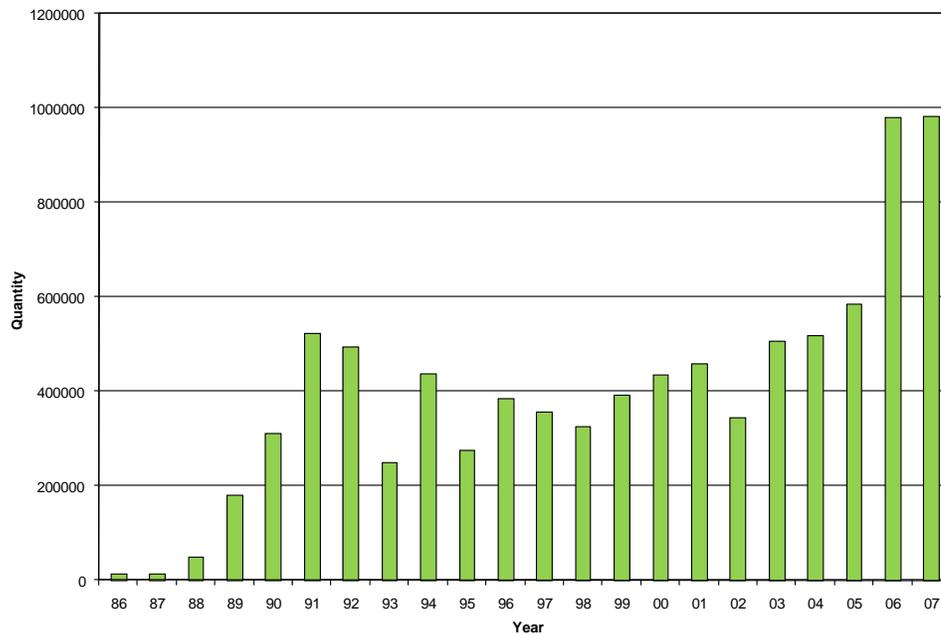
### a. Meat

Figure 8 shows total world exports as reported in CITES annual reports from 1986 to 2007 and indicates that between 1990 and 2005 the amount traded globally fluctuated around 400 tonnes yearly. Since that time however exports have increased sharply and amounted to over 900 t in both 2006 and 2007. 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 (see Figure 9) 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. The main destinations for the African production 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.

**Figure 8. Global exports of crocodilian meat 1986 – 2007**



Exports from Indonesia of meat of both *Crocodylus novaeguineae* and *C. porosus* appeared to be increasing 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 1500 kg in each of 2005, 2006 and 2007. 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 has then fallen to below 20 t annually between 2004 and 2007. Although it is possible that the data in recent Australian annual reports are underestimated, it is possible that the decrease is the result of crocodile meat 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

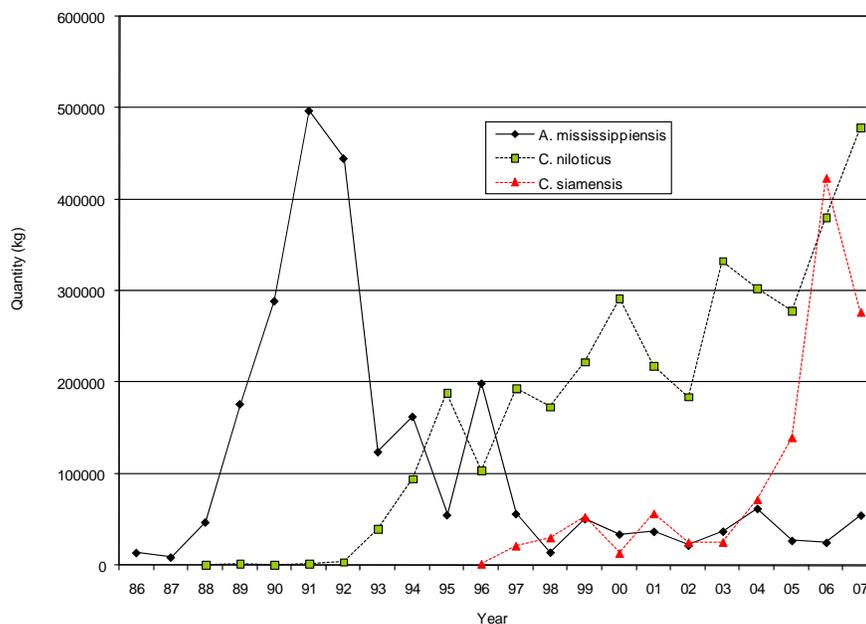
The biggest change in the crocodilian meat trade in recent years has been the expansion of the trade in *Crocodylus siamensis*. Thailand used to be the only exporter of *C. siamensis* meat and exports averaged about 35 t annually between 1999 and 2003. In 2004 exports increased to over 68 t, to almost 140 t in 2005 and to almost 400 t in 2006. In 2007 however, reported exports fell to 273 t, possibly because of increased amounts of *C. niloticus* in trade. 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 but appear to have fallen in 2007 to around two tonnes. Figure 9 shows the relative importance of the three species from 1986 to 2007.

There have been small exports by Mexico of meat of *Crocodylus moreletii* amounting to 432 kg in 2000, 3550 kg in 2002 and 1000 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. 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 2007 imported nearly 390,000. Most of the teeth were *Crocodylus porosus* from the operations in Malaysia, Papua New Guinea and Singapore but Australia also imported from *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.

## 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 is occasionally used by UNEP-WCMC to identify typographic errors in the report, for example where it is suspected that a decimal point has 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. Many of the values are nonsensical and may be the result of a typographic error in that field of the report; these have been ignored in the analysis below. Table 10 shows 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. 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 1997-2007**

	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
Exports from USA	106.4	112.5	142.6	177.9	232.9
Re-imports by USA	124.6	144.9	168.3	193.5	253.4

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 \$US50 per skin between 2002 and 2007, 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 1998-2007**

Exporter/Re-exporter	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Colombia	38.6	39.7	37.4	43.5	50.7	49.9	46.8	50.6	50.8	54.4
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
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
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 frequently 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. 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 crocodylian 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 eight caiman skins from Mexico, 19 skins of *Crocodylus novaeguineae* and 19 skins of *C. porosus* from Papua New Guinea in 2005, another 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, and 200 *Caiman crocodilus fuscus* skins, originating in Colombia, from Thailand in 2007. Globally, 5807 manufactured leather products were reported as being seized in 2005, 6317 in 2006 and 3692 in 2007.

## Discussion and recommendations

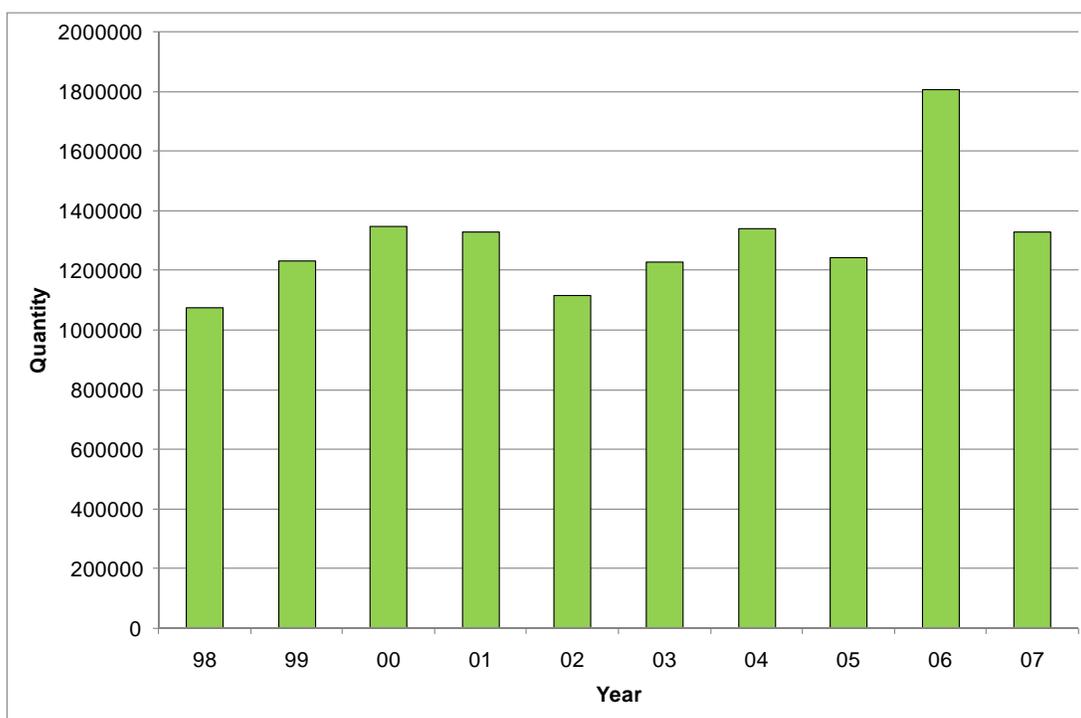
The overall volume of world trade in classic crocodylian skins and caimans from 1998 to 2007 is shown in Figure 10 and the data are summarised in Table 12. They are based, wherever possible, on country of export data. There are uncertainties regarding figures for the overall totals because of the lack of annual report data from certain key countries, particularly Nicaragua, Panama, Switzerland and Uganda. However it is hoped that the estimates made using import country data are sufficient to indicate close approximations to actual exports.

Some diversification in the trade began in 2001 with two different species entering the market, captive-bred *Crocodylus acutus* from Colombia and subsequently in 2003 from Honduras, and *Caiman latirostris* from Argentina and later, in 2006, Brazil. Trade in these species continues and appears to be increasing. The first exports in recent years of wild *Caiman crocodilus crocodilus* skins from Guyana occurred in 2001 and continued through 2007 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 2007 with exports falling by almost 40 per cent. The main reason for this appears to 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.*). Exports of *Crocodylus niloticus* appear to have remained steady at between 140,000 and 160,000 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 appears to have fallen with a corresponding increase in that of *C. porosus*, perhaps suggesting a market swing. Thailand's exports of *C. siamensis*, which had ranged between 1679 and 5459 between the mid 1990s and 2002 has since showed a steady increase to over 37,000 in 2007 and Viet Nam also exported significant numbers of skins of this species between 2005 and 2007. 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 following three years, 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 year 2007 saw a return to more normal levels of 668,000.

Overall the total number of skins entering international trade in 2007 was about 1.33 million, a return to the levels seen between 1999 and 2005. It should be noted that the figure for 2007 may need adjustment when more annual report data are received.

Significant improvement in the reporting of crocodylian trade continues, however the absence of annual reports from some of the producer countries and Switzerland renders analysis of the trade more difficult than it need be. Switzerland continues to report overall totals rather than on a shipment by shipment basis but are no longer a major direct importer of skins.

**Figure 10. Global exports of crocodilian skins 1998-2007**



**Table 12. Reported global trade in crocodilian skins 1998-2007**

Species	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
<i>Alligator mississippiensis</i>	206,620	239,944	249,155	343,116	237,840	341,734	368,409	356,393	421,220	262,133
<i>Crocodylus acutus</i>	0	0	0	100	630	830	227	204	120	404
<i>C. johnsoni</i>	309	45	10	0	2	0	0	65	0	0
<i>C. moreletii</i>	193	2	1228	2430	1591	997	549	855	158	11
<i>C. niloticus</i>	79,717	133,339	147,311	150,797	159,970	148,553	140,497	151,491	166,242	153,969
<i>C. novaeguineae</i>	25,491	22,191	23,233	30,634	30,749	27,308	39,796	32,002	38,645	28,663
<i>C. porosus</i>	24,123	15,971	25,791	28,223	24,278	26,564	30,728	37,441	34,152	45,215
<i>C. rhombifer</i>	2	0	0	0	0	0	2	0	0	0
<i>C. siamensis</i>	1679	5459	2417	4422	3580	10,982	20,930	31,517	47,972	54,331
<b>subtotal</b>	<b>338,134</b>	<b>416,951</b>	<b>449,145</b>	<b>559,722</b>	<b>458,640</b>	<b>556,968</b>	<b>601,138</b>	<b>578,451</b>	<b>708,509</b>	<b>544,726</b>

Species	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
<i>Caiman crocodilus crocodilus</i>	35,580	32,571	38,155	25,510*	22,709	34,636	70,722	65,078	69,574	44,894
<i>C. c. fuscus</i>	691,348	777,791	840,993	710,113	552,077	572,059	621,691	603,223	972,941	670,828
<i>C. latirostris</i>	0	0	0	88	90	165	215	2752	1669	1125
<i>C. yacare</i>	6497	615	15,629	32,128	78,811	60,288	41,882	53,241	52,998	65,452
<b>subtotal</b>	<b>733,425</b>	<b>810,977</b>	<b>894,777</b>	<b>767,839</b>	<b>653,687</b>	<b>667,148</b>	<b>734,510</b>	<b>724,924</b>	<b>1,097,182</b>	<b>782,299</b>
<b>Grand total</b>	<b>1,071,559</b>	<b>1,227,928</b>	<b>1,343,922</b>	<b>1,327,561</b>	<b>1,112,327</b>	<b>1,224,116</b>	<b>1,335,648</b>	<b>1,303,375</b>	<b>1,805,691</b>	<b>1,327,025</b>

\* = data deficient

In previous IACTS reports we have commented upon the importance of export permit numbers for accurate cross matching of shipments but still very few crocodilian producer countries have adopted the recommended permit number format that identifies the year of permit issuance (see CITES Resolution Conf. 12.3 (Rev. CoP14)).

Standardisation of the terminology used to describe parts of crocodilian skins has been recommended in the past in order to 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 this area but we continue to recommend this standardisation.

Similarly, we urge CITES Parties to pay greater attention to accurate reporting of the source of the material and suggest, for crocodilians, it should be possible for analytical purposes, to combine codes C, D and F to cover farming operations, and O and U to cover unknown source. We believe the move by the CITES Authorities in the United States to report ranched alligators as being wild is a retrograde step that will hinder wildlife management programmes.

We continue to recommend that 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.

The following recommendations made in previous IACTS reports remain valid:

- ◆ 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 XIII, paragraphs 6 and 7.*
- ◆ UNEP-WCMC **recommends** that *Parties adopt the recommendations of Resolution Conf. 12.3 (Rev. CoP14) concerning the format of permit numbers as soon as possible.*
- ◆ UNEP-WCMC would **recommend** that *wherever possible, Parties report the actual quantities of skins being traded.*

## **Acknowledgements**

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