

Transfer of Morelet's Crocodile *Crocodylus moreletii* from Appendix I to Appendix II with a zero quota for wild individuals

Proponents: Mexico and Belize

Summary: Morelet's Crocodile *Crocodylus moreletii* is a small to medium-sized crocodylian that occurs in freshwater lagoons, swamps, streams and backwaters in forested areas or those with dense waterside vegetation in Belize, Guatemala and Mexico. It normally first breeds at between six and eight years of age and at a length of 1.5 m, although younger, smaller individuals may also sometimes breed. Clutch size averages 35. Longevity is thought to be 30 years or more. It has been included in Appendix I since 1975.

The species may form essentially one population, although this remains unproven. Its potential area of distribution covers some 450 000 km², of which around 400 000 km² is in Mexico. Analysis of maps and remote sensing data indicates around 50 000 km of riverbank and shoreline of permanent lakes within the range in Mexico. Around half of the range in Mexico has original vegetation cover, within which there is an estimated 25 000 km of riverbank and lake shore that is believed to constitute optimal habitat for the species. There is less information on the rest of the range but estimates of available habitat are of around 3300 km in Belize and 7000 km in Guatemala. However, in Belize only parts of the country have been adequately surveyed, and in Guatemala surveys have also been inadequate. Habitat degradation is believed to have seriously affected two thirds of suitable habitat in Guatemala.

By the 1970s, the population of Morelet's Crocodile was evidently severely reduced, the decline being chiefly ascribed to hunting for hides and meat. Commercial hunting of the species was banned in Mexico in 1970 and the species has been protected in Belize since 1981, and in Guatemala at least since 1999. Populations, at least those in Mexico, are now believed to have recovered considerably. The total population is estimated by the proponent to be around 100 000, of which around 20 000 are adults; these estimates being based in part on surveys carried out in Mexico between 2000 and 2004. The IUCN Red List assessment in 2000 estimated the mature population at more than 10 000 individuals at that time. The species continues to be affected by habitat degradation, native predator species, and hybridization with *Crocodylus acutus*, but at least in Mexico these are not believed to constitute major threats at present. The species is currently categorized as Lower Risk/Conservation Dependent by IUCN.

The vast majority of recorded international trade in the past 10 years has originated in Mexico, from where export of around 1200 per year skins of captive origin has been reported between 2001-2007. Currently, commercial exploitation of Morelet's Crocodile in Mexico can legally only involve animals born and raised in captivity (closed-cycle operations, and beyond the second generation) of Wildlife Management Units known as UMAs. Mexico has registered three commercial captive breeding facilities for this species in line with *Resolution Conf. 12.10 (Rev. CoP14)* and uses the universal system for the identification of crocodylian skins under CITES (*Resolution Conf. 11.12*). The farms have a large population of the species, with closed-cycle breeding, which appears to satisfy the market demand nationally and internationally. Since 2000, the national harvest authorized in Mexico amounts to fewer than 2000 skins a year. The total potential production is reported to be around 16 500, which could provide about 10 100 skins per year. There has been limited export from Belize of specimens for scientific purposes. Reported seizures of illegally traded specimens have been at a low level.

Mexico is in the process of developing comprehensive monitoring and management systems for the species; however, the situation in Belize and Guatemala is not as clear.

The species can generally be distinguished in trade from other similar species by morphological features of the skin; however, it is not yet clear whether hybrids with *C. acutus* can be distinguished from pure *C. moreletii*.

The proponent seeks to transfer *Crocodylus moreletii* from Appendix I to Appendix II with a zero quota for wild specimens.

Analysis: *Crocodylus moreletii* has a total population estimate of 10 000–20 000 mature individuals. It has a large potential area of distribution, within which there is at least 25 000 km believed to constitute optimal habitat. There has been no recent marked decline in numbers, nor is any such decline projected; indeed, the population is believed to have increased considerably in the past 30–40 years. The species would therefore appear no longer to meet the biological criteria for inclusion in Appendix I.

Annex 4 of *Resolution Conf. 9.24 (Rev. CoP14)* sets out precautionary measures for the transfer of species from Appendix I to Appendix II. The current proposal is for a zero export quota for wild specimens, so that the measures set out in paragraph A 2 c and attendant paragraphs in Annex 4 apply. Under these, effective enforcement controls must be in place. Mexico has been legally exporting specimens of captive-bred *Crocodylus moreletii* for some years and has a series of controls in place, including the universal tagging system for the export of crocodilian hides under CITES. Controls in Belize and Guatemala are less clear. However, little illegal trade has been recorded from any range State in recent years. Under Annex 4 of *Resolution Conf. 9.24 (Rev CoP14)* any future change from the zero quota for wild specimens would require a proposal to be submitted to the Conference of the Parties.

Supporting Statement (SS)	Additional information
<p>Belize, Guatemala, Mexico</p> <p>Lower Risk/Conservation Dependent (Assessed 2000, Criteria version 2.3)</p>	<p><u>Taxonomy</u></p> <p> </p> <p><u>Range</u></p> <p> </p> <p><u>IUCN Global Category</u></p>

Biological criteria for inclusion in Appendix I

A) Small wild population

(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

The IUCN/SSC Crocodile Specialist Group found the species was present in more than 40 localities in the Gulf of Mexico. Surveys and observations indicated moderate densities, the presence of the species in all historic localities, and more than 10 000 mature individuals in the wild.

Surveys and observations have indicated moderate densities and presence of the species in all historic localities. The index of abundance for *Crocodylus moreletii* in Mexico is 3.16 individuals per km. Although not a strict or direct comparison, the magnitude of the index for the species in Mexico is similar to that estimated for Belize (2.63 individuals per km) and Guatemala (2.078 individuals per km). The

The Red List assessment and the information in the SS referring to surveys and population estimates are not applicable to Guatemala, where there have been no recent comprehensive surveys and severe and increasing habitat degradation would seriously affect any population estimates (Castañeda, 2009).

In Belize, Stafford et al. (2003) reported numerous individuals, representing a wide range of size classes in the Macal River watershed in 2000 and 2001. Dever et al. (2002) studied population genetics for the species in Belize. Their findings suggested a relatively high level of migration among populations and were consistent with an isolation-by-distance model of gene flow.

Supporting Statement (SS)	Additional information
<p>relative abundance indices were compared with the length of optimum habitat in Mexico (25 227 km). For Guatemala, this information was inferred from the literature (6994.5 km) and for Belize, from geography (3347 km). For Mexico, estimates of the potential number of adult <i>C. moreletii</i> in the wild were made by extrapolating from the percentage of adults observed in Project CoPan samples (surveys carried out between 2000 and 2004) (63 localities, 19% of individuals belonged to Class IV, size >1 500 m, i.e. breeding adults). That restriction was applied generally to the percentage of the adult population with an estimated range in the case of Guatemala and Belize. The results indicate an overall estimate of 102 434 individuals of all ages in the wild for the entire range of the species, of which 19 462 individuals were adults.</p>	
<p><u>B) Restricted area of distribution</u> (i) Fragmented or localized population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment</p>	
<p>For Mexico, the potential range is estimated at 396 455 km². With the addition of the Peten region of Guatemala and Belize, the total potential area for <i>C. moreletii</i> includes about 450 000 km².</p>	
<p><u>C) Decline in number of wild individuals</u> (i) Ongoing or historic decline; (ii) inferred or projected decline as a result of decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment.</p>	
<p>In Mexico, during the Spanish conquest in the 16th century, there was a massive clearing of forests to farm cattle and intensify agriculture in the Gulf Coast. In the past 60 years, there has been an increase in infrastructure in areas of the range of <i>Crocodylus moreletii</i>. Since 1988, the decree of <i>Ley General de Equilibrio Ecológica y Protección al Ambiente</i> (LGEEPA) established restrictions on land use change, and any new project must meet strict protocols for environmental impact assessment in order to be approved. The Project CoPan recorded suitable habitat for crocodiles in 35 (55%) of 63 locations in different parts of its range in Mexico, and 15 of them (24%) even proved excellent. Based on these data, a correlation analysis showed that, apparently, there is no strict relationship between habitat quality and the observed number of crocodiles, as there was continued presence of the species</p>	<p><i>There seems to be little information about the historical status of the species. For many years after its original description it was overlooked, treated as indistinguishable from <i>Crocodylus acutus</i>, until its rediscovery in Belize and confirmation of its validity as a species by Schmidt (1924). Populations were greatly reduced in many areas owing to uncontrolled hide hunting, which took place principally in the 1940s and 1950s (Ross, 1998). In the 1920s, an average of 1000 hides were sold per day at a market in Villahermosa, Tabasco, Mexico (Alvarez del Toro, 1974).</i></p> <p><i>In Mexico, Powell (1973) reported populations as being much depleted in Tamaulipas and Veracruz. Campbell (1972) estimated a minimum population of 200 in the Lago de Catamaco area in Veracruz. Groombridge (1982) noted that the species was regarded as depleted and locally extinct (e.g. in the Los Tuxtlas region of Veracruz), but that breeding populations still occurred. Small- to medium-sized animals were not uncommon in parts, but large animals were very scarce. Small remnant populations in Veracruz were reported by Pérez-Higareda (1979). More recent reports suggested that populations were recovering to some degree and viable populations were found in several reservoirs in north-eastern Mexico. The populations in Tabasco and Campeche were thought to be severely threatened, but others in southern Chiapas and Quintana Roo were reportedly not endangered (Thorbjarnarson, 1992). A more</i></p>

Supporting Statement (SS)	Additional information
<p>even in areas with poor or intermediate habitat quality, and in areas subject to disturbance. Since the completion of the Project CoPan, there have been several local studies that suggest that the presence and abundance of the species is stable. The species is currently present throughout its natural range at reasonably high levels of abundance. This is true even for those areas of the country (Tabasco and Veracruz) where historical over-exploitation of the species is known to have occurred. The information obtained by the project in Mexico, along with data from literature pertaining to Belize and Guatemala, was used to develop a Population Viability Analysis (PVA), which indicated an 86% chance of survival of the species after 500 years.</p> <p>In Belize, it seems the whole country has optimum habitat for <i>C. moreletii</i> and the type of economic development to date has not resulted in significant alterations to the species' habitat.</p> <p>In northern Guatemala, the Petén region is the most important for the species; since 1961 a programme of increased human settlement has caused environmental changes and increased human/crocodile interactions, causing conflict. It has been estimated that over 50% of potential <i>Crocodylus moreletii</i> habitat in Guatemala has been degraded.</p>	<p><i>recent summary of the species's status in Mexico was provided by Sánchez and Álvarez-Romero (2006), which indicated that populations were generally in a satisfactory condition. Cedeño-Vázquez et al. (2006) recorded 23 and 16 individuals (7.7 and 5.3 crocodiles per km) in two nights in central Campeche. Sigler and Domínguez-Laso (2008) noted that knowledge about the distribution of the species had increased dramatically from 25 known localities in 1970 (Casas-Andreu and Guzman-Arroyo, 1970) to 168 in 2008.</i></p> <p><i>No data are provided on population trends over time, but an extensive monitoring programme is being designed. Data from "local studies" indicating stability in abundance should be presented. Increasing numbers of localities where the species is present is not an appropriate index of population size. With most crocodylians it has been well established that if habitats remain available and hunting pressure is reduced, populations can quickly recover. On the other hand, high hunting pressure, particularly aimed at adults can quickly reduce populations. The PVA analysis is considered to be a useful exercise, but is simply a model that can only be tested in hindsight (Dacey, 2009).</i></p> <p><i>In Belize, Powell (1971) reported that this species was severely depleted. More recently, Abercrombie et al. (1980) surveyed much of the northern half of Belize and found crocodiles (believed likely to be <i>Crocodylus moreletii</i> rather than <i>C. acutus</i>), to be generally depleted, but relatively abundant in several areas; they estimated the total population (greater than nine months of age) to be at least 2200-2500 at that time; however, nothing was known about the population status in the southern half of the country.</i></p> <p><i>Platt and Thorbjarnarson (2000) reported on spotlight surveys conducted from 1992 to 1997 to determine the population status in northern Belize. A total of 754 crocodiles were observed and 481.9 km surveyed (1.55 individuals per km). Encounter rates were highest in non-alluvial (8.20 per km) and alluvial (6.11 per km) lagoons, and were considerably lower in most rivers and creeks (0.95 per km), and coastal mangrove habitats (0.24 per km). The population sex ratio was significantly male biased (1 female: 5.3 males), although the reasons for this were unclear. Comparisons with survey data from 1979 to 1980 suggested substantial population recovery had occurred following legal protection in 1981. There were no immediate threats at that time to the continued survival of the species in Belize.</i></p> <p><i>In Guatemala, Thorbjarnarson (1992) noted that prior to Lara (1988), no past survey work had been done. The total population in three lakes in the Petén in 1989 was 75 individuals. The presence of reproductive-sized females and nests suggested that the population, though depleted, was capable of recovery. Sigler (2005) recorded 20 crocodiles in 2001 along 10 km of the Usumacinta River on the Guatemala-Mexico border. Castañeda et al. (2000) surveyed the Laguna del Tigre National Park in Petén in 1999 and recorded 130 crocodiles along 87.14 km of shoreline. They noted that the</i></p>

Supporting Statement (SS)	Additional information
<p style="text-align: center;"><u>The species is or may be affected by trade</u></p> <p>Currently, all commercial exploitation of Morelet's crocodile in Mexico must compulsorily involve animals hatched and raised in captivity (closed-cycle operations, and beyond the second generation) in Wildlife Management Units known as UMAs.</p> <p>The most common parts and derivatives of <i>C. moreletii</i> reported in trade are skins, pieces of skin and skin products, but others include specimens, eggs, bodies, scales, skulls and shoes. The main exporting country for the period 2001–2007 was Mexico (8498 skins, 750 pieces of skin, 1193 skin products), followed by Belize with 116 bodies, 766 eggs and 3124 scientific specimens. The major importing countries were Japan (6170 skins), Italy (1219), Republic of Korea (560), France (375) and Spain (162). In the period between 2000 and 2009, 119 CITES export permits were issued in Mexico for a total of 12,276 skins, and it is estimated that the potential annual export from Mexico would be 2500 skins.</p> <p>There were few reported illegal movements of parts and derivatives of <i>Crocodylus moreletii</i> between 1975 and 2007 for Mexico (308 leather products and 419 pairs of shoes), Guatemala (27 pairs of shoes) and Belize (31 eggs), with the only importer being the USA. There were reports of illegal killing of <i>C. moreletii</i> in Guatemala in 1998 but the number involved was lower than 25 years previously.</p>	<p><i>densities of Crocodylus moreletii recorded along the Xan-Flor de Luna road and in Laguna la Pista are the highest yet recorded in Guatemala. However, since then the area, along with most other areas in the country, has been seriously degraded, resulting in probably two thirds of suitable habitat being affected (Castañeda Moya, 2009).</i></p> <p><i>Almost all trade referred to in the SS for the species was reported in the CITES trade database with source code D for Appendix-I animals bred in captivity for commercial purposes.</i></p>

Precautionary measures

Species likely to be in demand for trade, but its management is such that the CoP will be satisfied with:

- i) implementation by the range States of the requirements of the Convention, in particular Article IV; and**
- ii) appropriate enforcement controls and compliance with the requirements of the Convention**

Mexico is working to design and implement a monitoring programme for populations and habitats of *Crocodylus moreletii* nationwide, taking account of the possibility that Belize and Guatemala might get involved. The programme seeks to track the experiences and outcomes of the Project CoPan and the suggestions of the CITES Animals Committee (at its 23rd meeting), in order to obtain better information on status and trends, relevant populations of the species and its habitat. The programme was developed within the "Estrategia Trinacional Belice-Guatemala-México para la Conservación y Uso Sustentable del cocodrilo de Morelet

The proposed tri-national strategy for managing the species is significant, and should include enforcement efforts to ensure no Crocodylus moreletii are transferred illegally across the borders between the three range States (Dacey, 2009).

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<p><i>(Crocodylus moreletii)</i>".</p> <p>Phase I of the project, currently under way, seeks to develop a preliminary design of the programme, taking account of the relevant areas in the range of the species, which ideally could be implemented by the three countries, based on the Project CoPan information and further research. The design will be reviewed and evaluated in a workshop (planned for January 2010). So far, the preliminary design proposes a biannual monitoring scheme, involving regular sampling throughout the range of the species. Once published, Phase II of the programme will consist of the implementation of agreed actions. The information collected in the latter will be tested periodically to produce population estimates and trends, considering the short, medium and long term.</p> <p>Currently, Mexico has no facilities to undertake wild ranching. The only establishments authorized and operating are those where the animals are raised in captivity in a closed cycle, and proved to have occurred beyond the second generation (F2). Such establishments are part of a formal system (SUMA) for Management Units for the Conservation of Wildlife (UMA), which also kept open the possibility of sustainable economic development to discourage the capture of wild individuals (e.g. ecotourism).</p> <p>Mexico has implemented several programmes to prevent and combat illegal exploitation of this species. As mentioned, with the SUMA, which is based on six basic elements: 1) register with the Department of Wildlife (DGVS-SEMARNAT, CITES Management Authority), 2) proper management of habitat, 3) monitoring of wild populations of the species in use, 4) controlled use (reports and periodic inventories of each UMA), 5) management plan approved and registered with the DGVS, and 6) certificate of production and methods of marking/labelling. SEMARNAT makes technical supervision visits to the UMA at random or if it detects inconsistencies in the management plan, population studies, surveys, inventories and periodic reports.</p> <p>For <i>Crocodylus moreletii</i> there are three tagging systems in Mexico, registered with the DGVS through inventories for the UMA. The first is inter-digital staples. The second is based on the traditional marking of scales on the tail (which is still only used by certain establishments). The third is the universal tagging system defined by CITES for export of hides.</p> <p>Regular reports from the UMA should consist of an inventory of the captive population of species subject to management (high, low), socioeconomic data for the activities they perform, and implications, contingencies and achievements based on indicators of success. This information would allow monitoring of the UMA to determine its continuity (record keeping), and assess the impact on managed populations and their habitat.</p>	<p><i>Under the zero quota proposed, no wild specimens of Crocodylus moreletii would be exported. No use of the wild resource is indicated, and the proponent would need to return to the Parties in the future if changes are proposed to the zero quota (i.e. use programmes are implemented) (Dacey, 2009).</i></p>

Supporting Statement (SS)	Additional information
<p>Management plans should include a safety programme and contingencies that describe the strategies to follow to establish measures of restoration, protection and management of specimens in case of environmental contingencies affecting the UMA (species and habitat).</p> <p>About 50 UMAs that handle Morelet's Crocodile have been recorded in Mexico since the 1980s, of which approximately 19 remain active today and three are registered with CITES.</p> <p>Mexican breeders of <i>C. moreletii</i>, with more than 15 years of experience, have indicated that no specimens on farms registered with CITES are hybrids. However, in the light of recent research in the Yucatan Peninsula, genetic studies will be undertaken on captive and wild populations to determine the possible presence of hybridization.</p>	<p><i>No details of management in Belize or Guatemala have been provided in SS.</i></p> <p><i>Windsor et al. (2002) provided information on a management plan for crocodiles in Belize and Dever et al. (2002) thought that their work on population genetics would be useful in optimizing future management plans.</i></p>

Other information

The main threat to the species is habitat degradation, especially the reduction in prey availability and possible contamination of water bodies. Current estimates indicate that the threat is moderate in Mexico and Belize, and slightly more intense in northern Peten, Guatemala.

Recently, studies performed at the molecular level have detected hybridization between *Crocodylus moreletii* and *C. acutus* in natural wild populations in the Yucatan Peninsula (mainly in coastal areas), and data suggest that some level of hybridization has always occurred, at least periodically in areas where they are sympatric. Hybridization in the wild was initially detected in Belize. The extent of hybridization is not known; however, evidence suggests that it may be more common than expected.

Preliminary data suggest the establishment of feral populations of *Crocodylus moreletii* on the Mexican Pacific coast, where naturally only *C. acutus* occurs, possibly from escapes from *ex situ* breeding farms. Mexico is working to diagnose the presence and potential threat of hybridization of these species on the Pacific coast. It aims to create identification materials (morphological and molecular) and to study the population dynamics of *C. acutus*. This effort will include monitoring and removal of individuals of *C. moreletii* and hybrids, for which field teams will be trained in standardizing sampling methods and the taking of morphological data.

Evidence suggests that natural factors do not pose a threat to the continuity of the species in the long term.

Threats

Platt et al. (2008) found that in Belize nest losses were primarily because of flooding and Raccoon Procyon lotor predation.

Supporting Statement (SS)	Additional information
<p>Potential human influences on <i>Crocodylus moreletii</i> could be, in descending order of importance: the infrastructure construction of wetlands, construction and operation of power plants, and the operation of chemical and processing industries, where proper waste disposal is unavailable.</p> <p>Interactions between crocodiles and humans in Mexico occur primarily with <i>Crocodylus acutus</i> and there are few official reports involving <i>C. moreletii</i>. In the period 2001–2009 some interactions were reported, but generally the problem animals are quickly captured and relocated or transferred to Centers for Research and Conservation of Wildlife (CIVS) or UMAs for reproductive purposes or for exhibition.</p>	
<u>Conservation, management and legislation</u>	
<p>Apart from CITES, the only international legislation protecting <i>Crocodylus moreletii</i> is the US Endangered Species Act, which in 1970 listed the species as Endangered. In May 2005, Mexico handed over a proposal to US authorities to reclassify the species in accord with its current conservation status.</p> <p>Mexico declared a permanent closed season for commercial harvest of crocodiles in 1970; this was backed up with monitoring and enforcement in areas where the catch was concentrated, in skin treatment centres, product manufacturing centres, and at borders. In the past 10 years, Mexico has promoted and developed a policy to maintain and create protected areas, under the Natural Protected Areas System (SINAP), which affords protection to the habitat of <i>Crocodylus moreletii</i>.</p> <p>In September 1999, COMACROM, a consultative body to the Mexican authorities focussing on programmes targeting conservation and sustainable use of crocodiles in Mexico, was established. It includes scientists, technicians, NGOs, producers, authorities and other relevant personnel</p> <p>In 2000, Mexico implemented the Programa de Conservación de Vida Silvestre y Diversificación Productiva sel Sector Rural, which defines the strategic, legal and administrative framework, according to which any initiative should be linked to the use and conservation of wildlife.</p> <p>In July 2000, the <i>Ley General de Vida Silvestre</i> (LGVS) entered into force. The aim is to conserve wildlife and its habitat through protection and optimizing sustainable use, to maintain and promote restoration of its diversity and integrity, and increase the welfare of the inhabitants of the country. In the case of <i>Crocodylus moreletii</i>, LGVS only allows the use of exemplary products of controlled captive breeding and must contribute to the development of populations.</p>	

Supporting Statement (SS)	Additional information
<p>NOM-059-SEMARNAT-2001 identifies the native species of flora and fauna at risk in Mexico and currently lists <i>Crocodylus moreletii</i> under the category “subject to special protection” (D), including taxa that are not at risk, but are of interest to the country and deserve government protection to ensure their continuity and abundance.</p> <p>In Belize, the <i>Wildlife Protection Act</i> prohibits the hunting of wildlife, including <i>Crocodylus moreletii</i>.</p> <p>In Guatemala, <i>Crocodylus moreletii</i> is in the Listado de Especies de Fauna Silvestre Amenazadas de Extinción (<i>Resolución No. ALC/032-99</i> del Consejo Nacional de Áreas Protegidas, CONAP), in Category 2 “En grave peligro”, which includes species that are endangered by habitat loss, trade, very small populations and/or endemic species with limited distribution.</p>	<p><i>The Act in Belize, originally passed in 1981, was revised in 2000, but the hunting restriction remained unchanged</i> http://www.belizeaw.org/lawadmin/PDF%20files/cap220.pdf</p>
<u>Similar species</u>	
<p>Species in international trade that look similar to Morelet’s Crocodile include <i>Crocodylus acutus</i>, <i>C. niloticus</i>, <i>C. novaeguineae</i>, <i>C. rhombifer</i> and <i>Osteolaemus tetraspis</i>. However, <i>C. moreletii</i> can be distinguished from other Mesoamerican species by the incomplete transverse series of sub-caudal scales. In addition, it features six nuchal scales of similar size, whereas similar species have only four (<i>O. tetraspis</i>) or four large and two small (<i>C. acutus</i>, <i>C. niloticus</i>, <i>C. novaeguineae</i> and <i>C. rhombifer</i>).</p>	<p><i>Platt and Rainwater (2005) provided a summary of morphological characters useful for distinguishing Crocodylus moreletii from C. acutus. The supporting statement does not mention the problem of distinguishing hybrid individuals (C. moreletii x C. acutus). Ray et al. (2004) analysed the low levels of nucleotide diversity in C. moreletii and evidence of hybridization in C. acutus. The identification of specimens of hybrid appearance, as detected in captivity with atypical specimens of C. acutus (25%) and C. moreletii (3.1%) in Quintana Roo, remained problematical (Villegas, 2005).</i></p> <p><i>Domínguez-Laso and Monter (2007) developed a method of distinguishing Mexican crocodilian species using Amplified Fragment Length Polymorphism. They found that they could reliably differentiate the Mexican species, as well as the different populations of each, but further work was needed to identify hybrids.</i></p>
<u>Artificial Propagation/Captive breeding</u>	
<p>In Mexico, only animals born and reared in captivity (in closed cycle farms and second generation individuals) within the UMAs are allowed in trade. Since 2000, the national harvest authorized in Mexico amounts to fewer than 2000 skins a year. However, the total production potential on farms is around 16 500, which could provide about 10 100 skins per year.</p>	<p><i>Mexico has registered three commercial captive breeding facilities for this species in line with Resolution Conf. 12.10 (Rev. CoP14).</i></p>
<u>Other comments</u>	

Reviewers:

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