### GUIDE FOR THE CASE STUDY

* Crocodylus acutus

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Crocodylus acutus</th>
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<tbody>
<tr>
<td>Common Names:</td>
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<tr>
<td>English:</td>
<td>– American Crocodile</td>
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<tr>
<td>Spanish:</td>
<td>– Cocodrilo Americano, Caimán, Caimán de costa, Caimán aguja, Cocodrilo de Río, Lagarto Amarillo, Lagarto Real</td>
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<tr>
<td>French:</td>
<td>– Crocodile d'Amérique, Crocodile Americain</td>
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<tr>
<td>Synonym:</td>
<td>Crocodilus acutus Cuvier, 1807</td>
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<tr>
<td>CITES Appendices:</td>
<td>Included in Appendix I, except the population of Cuba, which is included in Appendix II since 12/01/05</td>
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<tr>
<td>Taxonomic Notes:</td>
<td>This species is hybridizing with <em>Crocodylus moreletii</em> in Belize (Ray et al. 2004) and the Yucatan of Mexico (Cedeno-Vasquez et al. 2008, Rodriguez et al. 2008) and with <em>Crocodylus rhombifer</em> in Cuba (R. Soberon, R. Ramos pers comm.) a factor that has not yet been considered in conservation efforts.</td>
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<tr>
<td>Range Description:</td>
<td>The American Crocodile is the most widely distributed of the New World crocodiles, distributed in the Atlantic from the southern tip of Florida and the Caribbean islands of Cuba, Jamaica and Hispaniola to the Yucatan of Mexico and south to Colombia and Venezuela. An isolated subpopulation is found in the Rio Grijalva basin in Mexico. Along the Pacific coast it is found from Northern Sinaloa in Mexico to the limits of mangrove coastal habitats in northern Peru. This species is found up to 1,200 m above sea level.</td>
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<tr>
<td>Countries</td>
<td>Native: Belize; Colombia; Costa Rica; Cuba; Dominican Republic; Ecuador; El Salvador; Guatemala; Haiti; Honduras; Jamaica; Mexico; Nicaragua; Panama; Peru; United States (Florida); Venezuela, Bolivarian Republic of</td>
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<tr>
<td>Population:</td>
<td>Overexploitation from the 1930s to the 1960s led to a severe decline in the abundance of this species. In the USA, the population is recovering and now inhabits most of their remaining habitat in southern Florida over a larger area than in 1978 when it was protected (Mazzotti et al. 2007). In the other countries in its range, protection has resulted in some recovery, but overall numbers are still depleted in some countries such as Colombia and Ecuador, but substantial recovery has taken place in other areas including Cuba, Costa, Mexico and Venezuela (Thorbjarnarson et al. 2006).</td>
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<tr>
<td>Habitat and</td>
<td>This species mainly occurs in coastal habitats such as lagoons, mangrove swamps and</td>
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**Ecology:** other brackish water; however, it can also inhabit freshwater and landlocked reservoirs. Eggs are laid in nests on elevated beach ridges, preferably bordered by brackish lagoons to serve as hatchling habitat (Platt and Thorbjarnarson 2000).

*Crocodylus acutus* is a hole-nesting species, but is adaptable in terms of nesting ecology, in some areas creating elevated mounds of substrate into which eggs are deposited (Thorbjarnarson 1989). Clutch size is typically 30 to 60 eggs, although in some populations mean clutch size is in the low 20s (Platt and Thorbjarnarson 2000). As with most hole nesting species, *C. acutus* nests during the annual dry season, with eggs hatching around the beginning of the annual rainy period (Thorbjarnarson 1989, Casas-Andreu 2003). The American Crocodile is adept at using man-made areas for nesting, and this is one of the reasons behind its population recovery in parts of its range (Mazzotti *et al.* 2007).

**Major Threat(s):** This species was hunted and overexploited for its hides in the 1930s until it was protected in the 1970s, however, illegal hunting still occurs. It is also threatened by habitat degradation from coastal development, including destruction of nesting grounds and the destruction of mangrove swamps for shrimp aquaculture. In the Dominican Republic, overharvesting of fish has contributed to the declines of this species (Ross 1998). When young, individuals of this species may also be predated by birds, raccoons, coati, dogs, and by adult crocodiles (i.e., cannibalism).

**Conservation Actions:** A review of the status and distribution of *C. acutus* throughout its range was carried out relatively recently (Thorbjarnarson *et al.* 2006), and found the species to be recovering in most parts of its historic range. There were a few areas where population recovery appears to be limited (e.g., Colombia), or non-existent (e.g., Ecuador), but populations of *C. acutus* in areas such as Cuba, the US and Costa Rica appear to be very healthy.

There are management measures in place in all countries where this species occurs, with the exception of El Salvador and Haiti. However, enforcement of protective measures is lacking and urgently needed, since illegal hunting remains a threat (Ross 1998). There are protected areas and sanctuaries for this species as well as captive breeding programmes and a few commercial farming operations are established. It is listed on Appendix I of CITES. Further research into the population, habitat requirements, and threats to this species should be carried out, and population monitoring is recommended.

**Use and Trade:** Captive breeding farms are registered by CITES in Cuba, Honduras and Colombia and 200-650 skins/year legally entered trade between 2003 and 2005 from these farms. Illegal hunting of this species still occurs for its hides.

**Main users:** The species is mainly used by rural communities that live under low resources situated usually away from urban centers, and in different cases, close to protected areas. For example, in areas such as those adjacent to the western bank of the River Temisque in Costa Rica (Valdelomar, V *et al.* 2012) communities in the Bay of Cispata in Colombia, indigenous communities of Embera-Katis, located in the upper basin of the River San Jorgeen Colombia (Racero, J 2008), residents of rural communities on the southwest coast of Jalisco, Mexico (Pena-Mondragon, J. 2013). Zoekpers with beans of breeding and reintroduction have been established in several countries, including Colombia and Peru, which have enabled job opportunities to local citizens.
Pilot Project for the Conservation of C. Acutus in the Bay of Cispatá – Colombia (Ulloa, G. et.al. 2012):

Background

The protection of Cocodrylus Acutus has been in force for around 50 years in Colombia, since the year 1965 when commercial hunting was banned and continues in force to date. According to recent and timely investigations, certain wildlife populations have shown signs of recovery. The commercial hunting of C. Acutus lasted for 37 years creating the marketing of two million of animal skins to the international market.

The Bay of Cispatá is an area of high poverty levels where communities of fishermen, farmers and hunters derive a vast part of their support from mangrove resources. Overexploitation of resources and transformation of mangrove has impacted the quality of life of the community.

The population of crocodiles (Crocodylus acutus) located in the Bay of Cispatá, Colombia, has been subject to conservation activities that involve the participation of a community Group of ex-crocodile hunters, and has been supported by local and national environmental authorities.

Conservation Project:

In 2000 a pilot project of restoration and conservation was initiated in Cispatá to determine a methodological method that would be easily implemented for other wildlife populations of the country, and also to draw guidelines for a National Conservation Programme of the Magdalena Crocodile.

The program is nowadays aimed at the recovery, conservation and sustainable management of wildlife populations and their natural habitat in the country. It is integrated by eight subprograms that take into account scientific, technical, ecological, social, economic, legal, educational, and financial aspects. In the development of these subprograms, it was taken into account the criteria established by IUCN for the order Crocodylia, which categorizes wildlife populations in censuses, recovery activities, monitoring, investigation, caution, local and economic benefits, settlements, traffic control, and use strategies.

The Project has been collecting information for more than 10 years of research with standardized monitoring programs and ex situ and in situ actions management, with production projects of captive breeding and closed cycle using ranching or harvesting of eggs, and incubation and rearing. The partial results demonstrate 505 nests collected in the past nine years and nearly 8,000 animals to the release program, noting that, more than 3,000 individuals already been released, so there could be a surplus of about 2,000-3,000 animals and a potential annual production of 1500-3000 animals or skins.

Since 1985 the Colombian government gave free rein to the Crocodylia order as object of hunting and development. By the year 1994, there were 43 programs in experimental phase; there are currently 8 programs and 6 farms are registered at the Secretariat of CITES and authorized to produce and export skins and, in total about 647 skins from this activity have been exported.

Community Participation:

The project for conservation of the population of the Bay of Cispatá is supported by a community group of ex-crocodile hunters who received strengthening to convert them into conservationists and group them into a legal association (ASOCAIMAN).

For more than seven years the members of ASOCAIMAN, in an educational and informative work, attend to tourists and students of all levels and from other regions including international visitors. They speak
technically, about the crocodile breeding and what are the project’s goals. Additionally, there is now a surplus of animals that could have a commercial export use directly benefiting the community and could expand the productive activities of the farmers and fishermen of the zone, eventually helping to reduce poverty in that community. The community and the Government believe that it is possible under the structure and scientific guidance of a management plan, of which they have carried out various activities during the years 2000 and 2012.

**STEPS TO RAPIDLY ASSESS THE IMPACT OF THE IMPLEMENTATION OF CITES LISTINGS ON LIVELIHOODS OF POOR RURAL COMMUNITIES**

The interested Parties could consider the following general steps when implementing a rapid assessment to identify how CITES listings affect the livelihoods of economically poor local communities.

Step 1: Define the current situation regarding livelihoods of poor rural community(ies) concerned and evaluate existing biological and trade data on relevant CITES-listed species.

Step 2: Conduct a desk study to obtain further information on selected species.

Step 3: Identify communities which are potentially impacted and collect relevant information for field work.

Step 4: Conduct field-based participatory livelihoods assessment in potentially-impacted communities.

Step 5: Undertake final assessments and develop recommendations.

Step 6: Monitor implementation of recommendations and changes and impacts over time.

**Step 1: Define current circumstances & collate and assess existing CITES information**

1.1 Identify relevant indicators of poverty against which to assess change (in conjunction with CBD National Focal Point). You can use as reference the instruments of this guide #5. The European Commission (EC, 2006), and 16. World Bank: Impact Analysis of Poverty (Leisher et al. 2007).

1.2 Identify whether a generic and/or a taxon based assessment is to be carried out.

*The steps below assume a taxon based assessment is being implemented. If a generic assessment is being undertaken, input from a NWTPR or use of the NWTPR framework will be of particular importance.*

1.3 Describe existing domestic and international management processes currently in place, particularly stricter domestic measures.

1.3.1 *Draw on the results of the NWTPR, if this voluntary process has been undertaken.*
1.4 Prioritize species for assessment

A prioritization process by Parties of species within their national jurisdiction, including, for example, the steps listed below, will help identify key species for rapid assessment.

1.4.1. Unlisted species. Review prior to the development of a proposal to list a species in the Appendices to CITES. This would provide information on the impact of existing management systems as a comparator for post-CITES listing assessments.

Note: the working group was not in agreement concerning review prior to CITES listing.

1.4.2. Prioritisation of taxa based on the CITES controls imposed, and level of trade. The following order could be considered:

a) Listed in Appendix I, and:
   i) with no positive measures or mitigation strategies following previous extensive trade;
   ii) associated with strategies to provide incentives for conservation (mitigation strategies) such as ex situ artificial propagation or captive breeding, ranching, and trophy hunting quotas;

b) Listed in Appendix II, and:
   i) subject to Significant Trade Review recommendations
   ii) with evidence of regular/high trade
   iii) with little evidence of historic trade

Available from CITES Trade database: http://www.unep-wcmc.org/citestrade/trade.cfm

c) Listed in Appendix III.

d) In addition, taxa which have the following attributes could be prioritised:
   i) those whose listing has changed within the last ten years; and/or
   ii) for which harvesting from the wild was the major source of supply; and/or
   iii) for which the poor are known to be major suppliers/domestic users; and/or
   iv) for which the income from trade has been reduced either through a decline in volume and price or a decline in price.

1.5 For selected species:

1.5.1 Summarize existing and previous CITES history

Available from CITES Species Database
http://www.cites.org/eng/resources/species.html

1.5.2. Characterize the CITES implementation measures taken with respect to the species, including methods of permit issuance, apportionment of licences, enforcement with respect to illegal trade etc, as well as associated measures (e.g. education, capacity building).

Step 2: Undertake desk based work to gather new data for selected species
2.1 Map the distribution of the species and collection areas if known;

2.2 Collate information on extraction and trade levels to assess numbers of people likely to be involved; (part of overall NDF)

2.3 Undertake trade chain analysis through targeted key informant interviews and focus group discussions, coupled with examination of available trade data to identify stakeholders and numbers involved at each stage;

2.4 If a NWTPR had not been implemented or has not been implemented in relation to the species under consideration, address the questions below, modified from questions included in section 3.2 of the NWTPR.

**Social impacts:**

- Has the wildlife trade policy had positive social impacts on poor harvesters?
- Has the wildlife trade policy affected property (access, use and tenure) rights of poor indigenous and local communities engaged in harvesting?
- Has the wildlife trade policy affected the financial assets of poor harvesters?
- Has the wildlife trade policy affected poor harvesters’ ability to engage in and benefit from sustainable trade?
- Has the wildlife trade policy contributed to human development of the rural poor?
- What kind of impact could have been generated over women? Have women been benefitted or disadvantaged? In higher proportion than with men? For example through the prohibition of activities that previously generated status and personal satisfaction.

**Economic impacts:** Has the wildlife trade policy had a positive economic impact on the poor?

- Has the wildlife trade policy caused a change in the supply structure that impacts the poor?
- Has the wildlife trade policy caused a change in the demand structure that impacts the poor?
- Has the wildlife trade policy affected the competitiveness of legal traders that impacts the poor?
- Has wildlife trade policy created positive incentives for, or stimulate private investments in sustainable management of resources that impacts the poor?
- Has wildlife trade policy created jobs and incomes for more poor people?

**Step 3: Obtain data from other agencies and identify key villages for field work**
1.1 Contact development/ disaster/ health/ and conservation organizations access existing information is available on livelihoods, vulnerabilities and resilience.

1.2 From this initial analysis, identify a sample of key areas or villages from which to collect livelihoods information, via:

- participatory livelihoods assessments;
- documentation collected by other organizations;
- expert witnesses

**Step 4: Undertake field based participatory livelihoods assessments in key villages**

1. Identify potential impacts and market responses through key informant interviews/ stakeholder workshop.

2. Key villages which supply a significant portion of the trade and are likely to be representative of the first stages of the supply chain (see Kuhl et al, 2009). Stories of Change methods (Wilder & Walpole, 2008) targeted at particular stakeholders may provide a means to gain some understanding of change after a CITES listing has been implemented.

3. More traditional Participatory Rural Appraisal (PRA) tools may include:

3.1. Village meetings at the start and end of the data collection and assessment period coupled with Stories of Change methods, which need to be implemented as an on-going process.

3.2. Village transects and mapping to provide an inventory of all households.

3.3. Historical timelines to provide some evidence of change.

3.4. Focus group methods to assess the importance of supply of the CITES specimens. Focus groups can be used to compile information on: the livelihoods options available to the villagers (e.g. farming; supplying CITES species; fishing; hunting; ecotourism employment etc); the seasonality of different livelihood options and of hunger seasons through the use of seasonal calendars; relative income and wealth rankings. Participants can also be asked to rank the entry barriers and popularity of different livelihood options.

3.5. Household questionnaires administered to randomly selected households through semi-structured interviews can be used to collect information on household demography, livelihood activities and sources of income including potential or actual changes following any modification of implementation measures (e.g. following adoption of amendments to the Appendices by the Parties), as well as on wealth indicators.

3.6. Interviews with key informants identified through focus group and other discussions as being involved with harvesting of CITES species can provide further information.

Questions could be modeled according to format provided in Annex 3 of *Kusters et al, (2005)* (Substituted wording is in red and underlined), for example:
• Has implementation of CITES listing led to much worse (-2) worse (-1), better (+1), much better (+2) physical access by producer households to the target resource?

• Has implementation of CITES listing led to much reduced (-2); reduced (-1); increased (+1); much increased (+2) cash income for the producer households or no impact (0)?

• Has implementation of CITES listing led to much worse (-2); worse (-1); better (+1); much better (+2) health and nutritional status of the producer households, or no impact (0)?

**Step 5: Final assessments**

A focus will need to be kept on identifying the impact of the CITES listing decision, compared to other confounding factors/management measures.

5.1. Final assessments should be undertaken through meetings with key stakeholders.

5.2. These should include identification of potential impacts on different wealth/gender/cultural groups.

**Step 6: Monitoring changes of impacts over time**

A periodic review of these assessments, including consideration of changes in poverty indicators, would allow changes of impacts over time to be monitored.

**Guidelines to address the impact of implementing Cites-listing decisions on the livelihoods of the poor.**

Draft Voluntary Guidelines for Parties to address the positive and negative impacts of implementing CITES-listing decisions on the livelihoods of economically poor local communities, used directly by the poor for commercial purposes (e.g. medicinal plants) and which represent their only source of cash income.

**Step 1: Preliminary activities - identify priority species in order to test the guidelines**

**Step 2: Empowerment of economically poor local communities**

**Step 3: Compensatory mechanisms for the shift from in situ to ex situ production**

**Step 4: Mitigation strategies for human-wildlife conflicts**

**Step 5: Empowerment Policies**

**Step 6: Monitoring Impacts of means of mitigation and development**

**Step 1: Preliminary activities - identify priority species in order to test the guidelines**

1.1. Identify priority species in order to put the guidelines to the test, including:
1.1.1. Species that are used directly by the poor for commercial purposes (e.g. medicinal plants) and which represent their only source of cash income.

1.1.2. Species subject to regular or significant international trade.

1.2. Analyze the outcome of rapid assessments to report on the actions described below.

**Step 2: Empowerment of economically poor local communities**

2.1 Equity

2.1.1 Develop policies to ensure that the benefits obtained from CITES trade are allocated to economically poor local communities and are distributed equitably.

2.1.2 Develop policies to ensure that those benefiting from the implementation of the listing are supportive of and assist with enforcement efforts directed at illegal trade.

2.1.3 Promulgate and encourage the use of standards for sustainability and Fair Trade.

2.2 Tenure

2.2.1 Recognize resource tenure for indigenous and tribal communities, and economically poor local communities.

2.2.2 Promulgate and foster the use of standards in issues relating to tenure.

2.2.3 Promote the use of certification marks or marks of origin for products obtained legally and in a sustainable manner by local communities.

2.3 Empowerment

2.3.1 Promote transparency in all policy-making.

2.3.2 If necessary, consider postponing the effective date of the CITES listings to allow time for the development of strategies to mitigate any negative effects.

2.3.3 Encourage primary users of wildlife to form associations of harvesters, growers, managers or whatever name they use to describe themselves.

2.3.4 Support the development of socially responsible trade associations, which shall have a clear obligation to share any benefits obtained.

2.3.5 Ensure that these guidelines are updated, so that information is available on economically poor local communities.

2.4 Education and Public Awareness

2.4.1 Support public awareness campaigns and the dissemination of information among economically poor local communities on the value of their natural resources and on the potential benefits they can obtain by participating in community programmes for long-term management of natural resources.

2.4.2 Ensure that the positive aspects of CITES and CITES-related legislation are fully explained, thereby enhancing an understanding of CITES as a tool for promoting sustainable use.

2.4.3 Develop interim aid packages to provide assistance to collectors and harvesters most severely affected by the implementation of a CITES-listing decision.

2.4.4 Recommend national authorities to register the "CITES" mark, in order to disseminate the name and associate it with programmes based on sustainable use.
Step 3: Compensatory mechanisms for the shift from *in situ* to *ex situ* production

3.1 Prevent economically poor local communities from being deprived of benefits due to the development of *ex situ* production that does not provide for benefit-sharing.

3.2 Develop market-based incentives to encourage the sharing of benefits from *ex situ* production with economically poor local communities.

3.3 Eliminate barriers to the development of *in situ* production systems.

3.4 Ensure that consumer countries work with *ex situ* traders and trade associations to foster positive effects and minimize any negative impact.

3.5 Develop supportive strategies through bilateral projects for conservation and development.

3.6 Explore the use of alternative production systems, such as ranching, artificial propagation or captive-breeding.

Step 4: Mitigation strategies for human-wildlife conflicts

4.1 Mitigation strategies could include compensation mechanisms, e.g. payment for ecosystem services; jobs in ecotourism or as game rangers; authorization to grant fishing and hunting permits to tourists; the development of alternative products, to name but a few of the possibilities, taking into consideration that incentives for economically poor local communities should be related not only to the listed species but to the whole ecosystem to which such species belong.

Step 5: Empowerment Policies

5.1 Ensure cross-sectoral technical support from government agencies responsible for land issues, agriculture, conservation, rural development, trade and industry, etc.

5.2 Identify increased costs arising from CITES-listing, including costs involved in the permitting procedure, and develop compensatory measures accordingly.

5.3 Encourage market mechanisms and access to micro-financing to enable economically poor local communities to participate in the development of *ex situ* production systems.

5.4 Establish or build on collaborative partnerships between development and conservation agencies in order to enhance aid effectiveness for wildlife conservation and eliminate duplication of efforts.

5.5 Encourage international financial institutions and cooperation agencies to assist Parties in the development of multilateral and bilateral measures, and policies to support institutions at the regional, national and local levels, in order to address any negative impact of the implementation of CITES-listings on the livelihoods of the poor.

5.6 Foster an efficient exchange of knowledge relating to programmes on community-based management of natural resources, between national stakeholders and professionals, and the international community of conservation and development agencies.

Step 6: Monitoring Impacts of means of mitigation and development

6.1 Please find below questions that can help you build the monitoring framework:

- Has the likelihood of conservation of habitats or species of interest for the project increased?
To what extent is the probability of the positive results likely to endure as a result of this project?
Will this improvement be maintained?
Have the successful experiences and failures of the project been shared?
How have livelihoods been benefitted?
Have women been benefitted?
Are there any other impacts (positive or negative) of the project that have not been captured so far?

References: