CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

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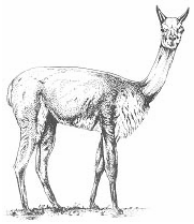

Twenty-second meeting of the Animals Committee
Lima (Peru), 7-13 July 2006

Periodic review of animal species included in the CITES Appendices

PERIODIC REVIEW OF PREVIOUSLY SELECTED SPECIES

1. This document has been prepared by the Secretariat.

2. Resolution Conf. 11.1 (Rev. CoP13) on Establishment of committees recognizes that an effective method of evaluating whether a species is appropriately listed in the CITES Appendices requires a periodic review of its biological and trade status, and resolves that the Animals Committee shall undertake such reviews by:

   i) establishing a schedule for reviewing the biological and trade status of these species;

   ii) identifying problems or potential problems concerning the biological status of species being traded;

   iii) consulting the Parties on the need to review specific species, working directly with the range States in the selection process, and seeking their assistance in such reviews; and

   iV) preparing and submitting amendment proposals resulting from the review, through the Depositary Government, for consideration at meetings of the Conference of the Parties.

3. The Secretariat reported to the Animals Committee at its 21st meeting (AC21, Geneva, May 2005) on the status of the periodic review of 33 animal taxa included in the CITES Appendices that had been selected at the 15th and 16th meetings of the Committee (Antananarivo, July 1999; Sheperdstown, December 2000) (see document AC21 Doc. 11.2).

4. At AC21, the Animals Committee revised and corrected the list of 33 species, concluding that 13 species remained to be reviewed either because the Parties that had volunteered to conduct the periodic reviews had not initiated or completed them, or because no Party had yet volunteered to undertake them.

5. At the request of the Committee, the Secretariat issued Notification to the Parties No. 2005/037 of 19 July 2005 (subsequently corrected by No. 2005/064 of 22 November 2005; see Annex 1) to inform Parties about the status of the periodic review of animal species, to request Parties that had volunteered to conduct reviews but had not yet done so confirm to the Secretariat whether their offer was still standing, and to invite all Parties to volunteer to conduct one or more of the outstanding reviews or to provide assistance or funding. Parties were encouraged to report any development at the present meeting.

6. The table below summarizes the responses from the Parties concerning the outstanding reviews that had been received by the Secretariat at the time of writing this document (early May 2006).

Species (Appendix in 1999 and 2000)	Party volunteering to conduct the periodic review	Responses from Parties; status of the periodic reviews
Callithrix jacchus (I)	Brazil	Confirmed interest to conduct review
Cephalophus silvicultor (II)	*No volunteers*	*No volunteers and not initiated*
Mirounga leonina (II)	Australia	No response
Pteropus macrotis (II)	Australia	No response
Agapornis fischeri (II)	United States of America (replacing Switzerland and the United Republic of Tanzania)	Review submitted (see Annex 5)
Caloenas nicobarica (I)	United States of America	Review submitted (see Annex 4)
Rhea americana (II)	Argentina	No response
Crocodilurus lacertinus (II)	Netherlands	Netherlands unable to conduct review
Tupinambis teguixin (II)	Argentina	No response
Ambystoma mexicanum	Mexica	Review submitted (see Annex 6)
Bufo superciliaris (I)	Netherlands	Netherlands unable to conduct review; postponed pending UNEP-WCMC analysis of Amphibia
Dyscophus antongilii (I)	Netherlands	Netherlands unable to conduct review; postponed pending UNEP-WCMC analysis of Amphibia
Dermatemys mawii	Mexico	Review submitted (see Annex 7)
Hirudo medicinalis (II)	Spain; United States of America	Review submitted (see Annex 2)
Ornithoptera alexandrae (I)	Spain	Review submitted (see Annex 3)

7. Spain and the United States of America have submitted for the present meeting outstanding reviews on *Hirudo medicinalis*, *Ornithoptera alexandrae*, *Caloenas nicobarica* and *Agapornis fischeri* (see Annexes 2, 3, 4 and 5).

8. The Scientific Authority of Mexico submitted, at AC21, outstanding reviews on *Ambystoma mexicanum* and *Dermatemys mawii* (see Annexes 2 and 3 of document AC21 Doc. 11.3). The Animals Committee did not come to conclusions on these two reviews and deferred its final recommendations for discussion at the present meeting. Mexico committed to develop a set of specific questions based on the discussions that had taken place at AC21 to gather feedback from the Committee intersessionally. The Scientific Authority of Mexico has submitted two revised reviews on *Ambystoma mexicanum* and *Dermatemys mawii* (see Annexes 6 and 7).

Issues for consideration

9. The Animals Committee is invited to consider the reviews by Spain, Mexico, and the United States of America, to come to a conclusion regading the two reviews by Mexico, and decide on how to treat the outstanding reviews of species that it had selected before CoP13, taking into consideration the process for selection of species for periodic reviews discussed under agenda item 11.1.

NOTIFICATION TO THE PARTIES

No. 2005/064 Geneva, 22 November 2005

CONCERNING:

Periodic review of animal species included in the CITES Appendices

1. Through Notification to the Parties No. 2005/037 of 19 July 2005, the Secretariat informed the Parties about the status of the periodic review of animal and plant species included in the CITES Appendices.

2. It has been brought to the attention of the Secretariat that Annex 1 to that Notification contained several errors. A corrected version of this Annex is therefore attached to the present Notification (corrections are shown in **bold**).

3. In the case of fauna, Parties that had volunteered to conduct species reviews but had not yet done so were requested to confirm to the Secretariat whether their offer was still standing, and to report any development at the 22nd meeting of the Animals Committee, in 2006.

4. In response to Notification to the Parties No. 2005/037, the Netherlands informed the Secretariat that it will not be able to conduct any of the four species reviews it had volunteered for at the 15th meeting of the Animals Committee (Antananarivo, July 1999). At the 21st meeting the Animals Committee (Geneva, May 2005), Spain and the United States of America confirmed they would conduct the species reviews they had volunteered for. The Secretariat has to date received no responses from the other Parties concerned (Argentina, Australia, Brazil, Switzerland and the United Republic of Tanzania).

5. The Secretariat invites all Parties to volunteer to conduct one or more of the outstanding reviews of selected species, or to provide assistance or funding.

Annex 1

Species (Appendix in 1999 and 2000)	Party volunteering to conduct the periodic review	Status of the reviews	Final AC recommendation
MAMMALS			
Callithrix jacchus (I)	Brazil	*Not initiated*	
Cephalophus sylvicultor (II)	*No volunteers*	*Not initiated*	
Macaca fascicularis (II)	Indonesia	Completed at AC16 (2000)	Retain in Appendix II
Mirounga leonina (II)	Australia	*Not initiated*	
Panthera pardus (I)	Kenya	Excluded from the review process at AC21 (2005)	
Pteropus macrotis (II)	Australia	*Not initiated*	
Saiga tatarica (II)	United States of America	Completed at AC16 (2000)	Retain in Appendix II
BIRDS			
Anas aucklandica (I)	Australia; New Zealand	Completed at AC18 (2002)	Retain in Appendix II
Agapornis fischeri (II)	Switzerland; United Republic of Tanzania	*Not initiated*	
Ara macao (I)	Guatemala; Mexico	Completed at AC17 (2001)	Retain in Appendix II
Caloenas nicobarica (I)	United States of America	*Not initiated*	
Falco peregrinus (I)	United States of America	Completed at AC17 (2001)	Retain in Appendix II
Macrocephalon maleo (I)	Indonesia	Completed at AC16 (2000)	Retain in Appendix II
Rhea americana (II)	Argentina	*Not initiated*	
REPTILES			
Boa constrictor (II)	*no volunteers*	Excluded from the Review process at AC21 (2005)	
Cnemidophorus hyperythrus (II)	United States of America	Completed at AC18 (2002)	Delete from Appendix II
Crocodilurus lacertinus (II)	Netherlands	***Not initiated***	
Dermatemys mawii (II)	Guatemala; Mexico	Completed at AC21 (2005)	Final recommendation deferred until AC22 (2006)
Dermochelys coriacea (I)	United States of America	Completed at AC16 (2000)	**Retain in Appendix I**
Python anchietae (II)	Namibia	Completed at AC16 (2000)	Retain in Appendix II
Tupinambis teguixin (II)	Argentina	***Not initiated***	
AMPHIBIANS			
Ambystoma mexicanum (II)	Mexico; United States of America	Completed at AC21 (2005)	Final recommendation deferred until AC22 (2006)
Bufo superciliaris (I)	Netherlands	Postponed pending UNEP-WCMC analysis of Amphibia	

Species (Appendix in 1999 and 2000)	Party volunteering to conduct the periodic review	Status of the reviews	Final AC recommendation
Dyscophus antongilii (I)	Netherlands	Postponed pending UNEP-WCMC analysis of Amphibia	
Hoplobatrachus tigerinus (II)	Netherlands	Excluded from the Review process at AC17 (2001)	
FISHES			
Cynoscion macdonaldi (I)	Mexico	**Completed at AC17 (2001)**	**Retain in Appendix I**
Probarbus jullieni (I)	United Kingdom	**Completed at AC16 (2000)**	**Retain in Appendix I**
Scleropages formosus (I)	Indonesia	**Completed at AC16 (2000)**	**Retain in Appendix I**
INVERTEBRATES			
Antipatharia (II)	United States of America	AC16 (2000)	Retain in Appendix II
Goniopora spp. (II)	*no volunteers*	Excluded from the Review process at AC21 (2005)	
Hirudo medicinalis (II)	Spain and the United States of America	***Not initiated***	
Ornithoptera alexandrae (I)	Spain	***Not initiated***	
Parnassius apollo (II)	Spain	AC18 (2002)	Retain in Appendix II

EVALUATION OF *HIRUDO MEDICINALIS* LINNAEUS, 1758

INTRODUCTION

At the 21st meeting of the Animals Committee (Geneva, May 2005), Spain committed to evaluating *Hirudo medicinalis* under the "periodic review of animal or plant species included in the CITES Appendices" [Resolution Conf. 11.1 (Rev. CoP13)].

For this purpose, Spain consulted the range States of the species, by means of a questionnaire requesting information on the following aspects in their territories:

- Current population status
- Population trends
- Habitat preferences
- National legislation covering the species
- International legislation covering the species
- National trade (legal and illegal)
- Management measures in place
- threats
- Monitoring programmes or research projects
- Captive breeding

The following countries responded to the questionnaire: Azerbaijan, Bulgaria, the Czech Republic, France, Georgia, Hungary, Ireland, Latvia, Lithuania, Norway, the Netherlands, Poland, Spain and the United Kingdom of Great Britain and Northern Ireland.

FORMAT FOR PROPOSALS TO AMEND THE APPENDICES [in accordance with Resolution Conf. 9.24 (Rev. CoP.13) Annex 6, modified]

A. Proposal

To maintain *Hirudo medicinalis* in Appendix II applying Criterion B of Annex 2a – "Criteria for the inclusion of species in Appendix II in accordance with Article II, paragraph 2 (a), of the Convention" – of Resolution Conf. 9.24 (Rev. CoP13), which stipulates that:

> *A species should be included in Appendix II when, on the basis of available trade data and information on the status and trends of the wild population(s),* ***at least one*** *of the following criteria is met:*
>
> *...*
>
> *B. It is known, or can be inferred or projected, that regulation of trade in the species is required to ensure that the harvest of specimens from the wild is not reducing the wild population to a level at which its survival might be threatened by continued harvesting or other influences.*

Justification: The species is subject to abundant international trade, which is predicted to increase, given renewed use of the species for medicinal purposes. Live leeches can only be used once, and their applications – particularly in plastic and reconstructive surgery – are seen to be on the rise. Furthermore, their habitats have undergone important alterations or have even disappeared in many range countries throughout the 20th century. Habitat loss is expected to continue for a long time in developing countries and transition economies where traditional land-use patterns are undergoing transformation. International trade thus constitutes a threat factor requiring continued control.

B. Proponent

Proposal prepared by Spain.

C. Supporting statement

1. Taxonomy

1.1	Class:	Hirudinoidea
1.2	Order:	Arhynchobdellida
1.3	Family:	Hirudinidae
1.4	Species:	*Hirudo medicinalis* Linnaeus, 1758
1.5	Scientific synonyms:	*Sanguisuga officinalis*, Savigny, 1820. *Sanguisuga medicinalis* (Linnaeus): Carena, 1821.
1.6	Common names:	German: Medizinischer Blutegel Danish: Lægeigle Spanish: Sanguijuela, sanguijuela medicinal Finish: Verijuotikas French: Sangsue médicinale, sangsue officinale Dutch: Medicinale bloedzuiger Hungarian: Pióca or nadály English: Medicinal leech Italian: Sanguisuga comune, sanguisughe Norwegian: Blodigle Swedish: Medicinsk blodigel
1.7	Code number:	A-829.003.001.00

2. Species characteristics

2.1 Distribution

According to UNEP-WCMC (http://www.unep-wcmc.org/) data, *Hirudo medicinalis* may be found in the following countries:

Albania, Armenia, Austria, Azerbaijan, Belarus (?), Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland (ex), Israel, Italy (incl. Sardinia), Kazakhstan (?), Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Republic of Moldova, Romania, Russian Federation, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, the Syrian Arab Republic, The former Yugoslav Republic of Macedonia, Turkey, Ukraine, the United Kingdom and Uzbekistan.

The question mark (?) following the name of a country indicates uncertainty as to whether the species occurs there or not.

Range of *Hirudo medicinalis*, according to UNEP-WCMC, 2006.
Areas marked in green are natural range States, and red shows where it is believed to be extinct.

2.2 Habitat

Hirudo medicinalis is a freshwater amphibian. It requires water of a certain quality and seems to prefer muddy bottoms, as well as underwater and aquatic/terrestrial vegetation (typically reed-beds) on the banks of bodies of water. It has been found in practically all types of still waters or slow currents, such as ponds, lakes and lagoons, natural and artificial waterholes for cattle, gravel-pit lakes, marshes, reservoirs, middle and lower reaches of rivers, swamped gutters, ditches, and all sorts of wetlands in general.

Other peculiar elements of its habitat include (Norway): high summer temperatures, occurrence in eutrophic (with abundant vegetation) or oligotrophic waters, pH between 5.7 and 7.3 (the minimum registered in the United Kingdom was 5.2), conductivity (K25) between 30 and 400 uS/cm and water colour from 5 to 50 mg Pt/l. Leeches do not tolerate low oxygen levels or high salinity (Bulgaria). The optimum temperature in the United Kingdom is 21ºC, as they become inactive between 5º and 10ºC.

As a bloodsucker, *Hirudo medicinalis* requires the presence of vertebrates, either regular inhabitants of the aquatic environment such as amphibians and fish – young leeches can only penetrate fine skins –, or domestic and wild birds and mammals that come to drink water. For this reason some consider that *H. medicinalis* prefers proximity to pastures with livestock (Poland).

According to research in Turkey, they are presumably able to survive buried as far as 1 m into wet mud in times of drought. They subsequently re-colonize large areas when the water level rises (Kasparek, coord., 1999, unpublished).

3. Status and trends

Thorough, relatively up-to-date data on population status and trends is very scarce. Among the information received from range States, only Norway and the United Kingdom have a more or less clear idea resulting from specific search activities. Information from Turkey is also quite good, based on a study performed between 1997 and 1999 (Kasparek, 1999). The countries that answered the questionnaire reported the information summarized below.

Azerbaijan: unknown.

Bulgaria: not well known, but initial recovery of the species is perceived, with improved water quality upon elimination of much outdated industry and better water management.

Spain: Information was taken from a 2001 Ministry of the Environment publication, a synthetic compilation of the "state of knowledge" on the species largely based on published references (García Más and Muñoz Araujo, 2001). The bibliography cites only some 15 such references, but the authors state literally, "this species could potentially occur in almost all Iberian Peninsula inland waters, but its populations face such threats that its range is drastically decreasing."

France: considered nearly extinct in the wild ("…proche de zéro").

Georgia: considered stable.

Hungary: Although Hungary's report discusses two species, *H. medicinalis* and *H. verbena*, they will be considered as only one for the purposes of this review. The species seems to occur in this country's main river basins, with particularly abundant populations in Kis-Balaton, in the Zala River delta, and in eastern and southern Hungary, in the Alföld region and in the steppe lakes between the Tisza and the Danube.

Ireland: It is even doubtful that the species was native to Ireland, as the only references are from ponds at monasteries, where leeches could have been introduced for medicinal purposes. No recent references are available.

Latvia: The species was found on 30 5 x 5-km square plots ("Emerald-Natura 2000" project, in 2001-2002) mostly in central Latvia, associated with 8-14 areas. It is assumed to occur especially in the Gauja River, above all in abandoned meanders, a habitat type where it is particularly frequent. It is considered to be widely distributed throughout the country.

Lithuania: favourable status. The species has been found in 20-30 natural bodies of water.

Norway: informed of a report published in 1994 confirming presence of the species in 34 bodies of water. Another 50 have been added to this list since then, but they have not been confirmed. It is considered stable and is being discovered in new locations.

Netherlands: very rare. Individuals and small populations have been found in some 10 locations, of which four are considered viable. The species has disappeared from several locations since 1990, while appearing in other new ones, although these are fewer. Populations are described as probably stable.

Poland: reports wide distribution throughout the country, and that it is relatively common. It could be considered stable, but available information does not provide solid evidence for this judgement.

United Kingdom: Specific research was carried out under a broader conservation and management plan for the leech (*The United Kingdom Medicinal Leech Biodiversity Action Plan*), with initial fieldwork apparently concluding in 2000. In *The status, conservation and use of the Medicinal Leech* (Malcolm *et al*., 2002), the species was said to enjoy a reasonably favourable status in the United Kingdom. In fact, the situation was better than expected, with leeches in a remarkable number of new locations. This research project lists a total of 135 sites where they were registered in the country. Regardless of their apparently favourable status however, this publication concludes that "in spite of the large number of new locations where it has been found, leeches continue to have a restricted geographical range in the United Kingdom" and considers the species vulnerable in most of the country. (The cited work forms the basis for all information on the United Kingdom used in the present review.)

Czech Republic: lack of general information; data deficient for population assessment.

Turkey: This country's information comes from a report by Kasparek (1999) summarizing the results of a study carried out from 1997 to 1999 by Turkish and German scientists. The study was promoted by the German CITES Scientific Authority and the Geneva-based leech-importing company Sanofi SA. It evaluated the status of *Hirudo medicinalis* throughout the major wetlands of western Anatolia, with special emphasis on two locations in the Black Sea region. The species was found in 42 of the 65 wetlands surveyed. It was not found in saline lakes and marshes, lakes that were dry at the time of the study, or in lakes surrounded by peat bogs valued as unsuitable for leeches due to the presence of humic acids.

Specimen density was determined to be 0.63 leeches/m^2 in 1997 and 0.69 leeches/m^2 in 1998, in a 1400 m^2 area of Efteni Gölu. At another location where the animals could move freely in and out of the study area (thus perhaps re-colonizing after offtake), a density of 3.16 leeches/m^2 was found over a surface area of 1,250 m^2. The report states that the supply of leeches in Turkey far exceeds the demand. (See the explanation in 5.1. National utilization).

Apart from higher or lower levels of occurrence in national territories, all countries generally report that the populations detected are small (at times just one individual) and frequently considered relatively fragile or vulnerable.

Some authors consider this species endangered in a large part of its range (see for example García Más and Muñoz Araujo, 2001).

4. Threats

The main threats to *Hirudo medicinalis* have been noted as follows:

Habitat loss and alteration: hydrological regulation in general, drying or filling lagoons or other water systems, agricultural and industrial pollution, water eutrophication, use of lakes and ponds for fish production (Czech Republic). In the United Kingdom, three more factors were identified: excess shade from overgrown riparian vegetation, salinization of water in coastal areas where seawater has intruded, and introduction of the fish *Carpinus carpio*. Hungary makes special mention of intensive agriculture.

Disappearance of potential hosts as a result of the decrease in numbers of large mammals in the wild, as livestock are increasingly controlled and kept in stables.

Overexploitation for pharmaceutical or medicinal purposes.

Public repugnance was also cited as a threat (Czech Republic).

The Kasparek report for Turkey (1999) includes an evaluation of the **impact of commercial harvest** on populations. This assessment concludes that although commercial harvest may locally affect populations to a 'serious degree', the effect is not the same on the entire population. This is associated with the practice of taking specimens from areas with higher densities, and the species's ability to re-colonize in certain wetlands. Finally, this report reiterates the view that current harvest for export does not pose a threat to the Turkish leech population, although a risk does exist for local populations in areas with higher levels of harvest. Among other recommendations, the report advises keeping the annual export quota under 7.5 tonnes.

IUCN (WCMC 1996) classifies *H. medicinalis* as LR/nt (Lower Risk / near threatened) but mentions no specific threats.

5. Utilization and trade

Historically, live specimens of *Hirudo medicinalis* were used for medical purposes. The more recent pharmaceutical use is for extracting and applying particular active medicinal ingredients.

The blood feeding capacity of leeches has been known for many centuries, and their therapeutic use was mentioned in works by authors in ancient Greece and Rome.

"Leeches were especially used for bloodletting, but also for other therapeutic purposes. It was believed that certain disorders were caused by poor quality of blood in the patient and that leeches could suck out this 'bad blood,' leaving the 'good blood'." (García Más and Muñoz Araujo, 2001). Malcolm *et al.* (2002) explain the medieval theory of how the balance of the four body humours was restored through the use of leeches, among other methods.

This use reached its height in the second half of the 18th and first half of the 19th centuries, spreading throughout Europe, especially France, the United Kingdom, and Germany. French imports in 1832 of over 57 million specimens (García Más and Muñoz Araujo, 2001) are indicative of the importance of the generalized use of leeches in hospitals.

The main reason for current use is to take specific active principles from the saliva of leeches, which have anaesthetic, clot-dissolving, vasodilator and anticoagulant properties, among others. In particular, the use of hirudin (anticoagulant) and hyaluronidase (spreading factor) have caused a revival of the use of leeches in plastic and reconstructive surgery, especially in reattaching body parts following amputation, as they prevent formation of thrombi and facilitate venous return (García Más and Muñoz Araujo, 2001).

5.1 National utilization

Apart from aforementioned purposes, Hungary and the United Kingdom speak of other uses for the leech. These include bait for recreational fishing – at GBP 5 each in the United Kingdom.

It seems that in various countries, leeches are commonly used for the therapeutic purposes noted above, usually under ancestral traditional circumstances. Such uses appear to go uncontrolled, and if there is trade, it is not on a large scale, nor is it registered. National trade is not noteworthy in most countries.

In Georgia, it has been used in traditional medicine from time immemorial and is currently sold in some pharmacies.

In Lithuania, trade is allowed under permits issued by the Regional Environmental Protection Department. Poland reports some illicit trade.

In Turkey, the 1999 Kasparek report establishes two lists of locations where leeches occur and are harvested. The first is a list of the so-called seven 'top areas', and the second contains six 'areas of major importance'. The species is only commercially exploited in two areas on the first list, with sporadic harvest in the other five. Commercial harvest takes place in only one area on the second list, with irregular or non-existent collecting in the rest. The two areas where leeches are harvested for commercial purposes on the first list, the Kizilirmak and Yesilirmak deltas on the Black Sea coast, account for 90 % of the offtake destined for export in Turkey. From this information, the report concludes that leech stocks in Turkey far exceed the demand.

Hungary reports a traditional use that has been handed down over time. Allegorical names for the leech have been traced back to the 13th century. In the 1950s leech harvesters ('pákász', 'piócás' or 'nadályos') continued to exist, and they used to sell their leeches at markets. Such use has been prohibited since September 2005.

5.2 International utilization

Chiefly pharmaceutical uses, with nearly all frozen specimens, which minimizes loss by death during live transport.

Lithuania exports and imports the species. A captive-breeding company sells them. Purchase transactions are carried out through another company that imports them from the Russian Federation once or twice a year, at a rate of some 3,000 specimens each time. No illicit trade is known.

Turkey has exported leeches for therapeutic purposes for at least a century, and it is still the country with the highest volume of exports (more than 2/3 of the world total). Until 1990, Turkey exported live animals, but the proportion of frozen specimens has been increasing since then, and now all Turkish exports for the pharmaceutical industry are frozen. This avoids considerable loss by death in transport. Sanofi, the company that promoted the study summarized by Kasparek (1999), imports some 5,000 kg a year from Turkey, except in 1995, when it imported nearly 8,000 kg.

CITES export quotas for *Hirudo medicinalis*

Year	Country of origin	Quota	Remarks
2006	Turkey	6,000 kg	live or frozen, wild
2005	Turkey	6,000 kg	live or frozen, wild
2004	Turkey	5,000 kg	live or frozen, wild
2003	Turkey	8,000 kg	live or frozen, wild
2002	Turkey	6,000 kg	wild
2001	Turkey	6,000 kg	wild
2000	Turkey	8,000 kg	wild
1999	Turkey	8,000 kg	wild
1998	Turkey	6,000 kg	

International trade data from 1992 to 2004 provided and classified by UNEP-WCMC are given in the Annex. Re-exports and extracts have not been included, as they are not statistically significant.

These data show that 95 % of the exports declared by exporting countries is of wild origin (W), while 82 % of the importing countries use this source code.

There can be no doubt that Turkey is the world's most significant exporting country, claiming 100 % of its exports to be of wild origin. It exports 96 % of the entire volume of kilograms declared by all exporters, and these transactions declared in kg represent a much larger volume than the amount declared as individual specimens. Turkey thus accounts for the great majority of all exports, in absolute terms.

The main exporters of captive-bred specimens (*sensu lato* = codes C and F) are France and the United Kingdom, but with much lower volumes than Turkish exports from the wild, and far from total export figures.

6. Legal instruments

6.1 National

Hirudo medicinalis is protected in Azerbaijan, Hungary, Latvia, Norway, Poland, Spain and the United Kingdom (direct information from the countries, although many others implement legislation or international agreements to protect it). Use is regulated in Bulgaria. It is included in the Red Data Book of Lithuania, in Category 5 (Restored). In Georgia, it is included in the 'Georgian Law on the Animal Kingdom'.

6.2 International

- CITES Appendix II

- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), Annex III: Protected fauna species

- European Council Directive 92/43/EEC of 21 May 1992, on the conservation of natural habitats and of wild fauna and flora (European Union Habitats Directive), Annex V: animal and plant species of community interest whose taking in the wild and exploitation may be subject to management measures

- European Union Council Regulation (EC) nº 338/97 of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein, Annex B

7. Species management

7.1 Management measures

Norway: No management is considered necessary for the moment.

Netherlands: Some habitat protection measures on a local scale.

United Kingdom: The species is subject to a certain level of management under the *Medicinal Leech Biodiversity Action Plan*: ponds created on farmlands have been colonized by leeches in just a few months (although it will take longer to reach suitable breeding conditions). They have been seen attached to the legs of swans flying from pond to pond in some water systems, and the intention is to favour this somehow.

It may find its way involuntarily and accidentally into new locations by anglers who use it as bait to catch the introduced fish species *Silurus glanis*. The *Romney Marsh Countryside Project* (http://www.rmcp.co.uk/MedicinalLeech.html) includes awareness-raising activities. The species is listed in the *English Nature's Species Recovery Programme*.

7.1.1 Monitoring and research

Bulgaria: Included in the National Biodiversity Monitoring System for future follow-up.

Hungary: The species has been included in the Hungarian Biodiversity Monitoring System (HBMS) since 2000, with special emphasis on the Kis-Balaton population, the largest one in the country. Implementation of the European Union Water Framework Directive involves generic monitoring of environmental parameters that may take this species into account.

Latvia: *Hirudo medicinalis* was studied in 2001-2002 in Latvia under the 'Emerald-Natura 2000' project, and more thoroughly by the author of several works within this project from 1997-2005.

United Kingdom: The Medicinal Leech Biodiversity Action Plan includes long-term monitoring, particularly concentrating on the so-called SSSIs – Sites of Special Scientific Interest.

Czech Republic: a certain amount of research among the responsible authorities and universities.

Serbia and Montenegro: It seems that the species has been included in a study on national biodiversity, but further information is not available (the Internet link fails).

Turkey: The aforementioned study was carried out between 1997 and 1999, forming the basis for the Kasparek report (1999).

7.2 Captive breeding

It is bred in the United Kingdom. In France, a company that markets the species has two controlled captive-breeding centres (AFAQ Iso 9000, version 2000, and veterinary agreements). Poland reports potential small-scale illegal captive breeding. The species is also bred in the United States of America.

In Hungary, the company In Vitro Research & Development Ltd. uses *Hirudo medicinalis* to manufacture medicines, paramedical products and dietary supplements. This research company has developed and registered 18 natural medicinal products containing leech extracts, such as Hirudofort, Antikeloid or Pleuridin, for example. The specimens used in research and production are bred and kept in a closed-cycle aquaculture regime.

8. Information on similar species

According to the reference cited for the United Kingdom (Malcolm *et al*., 2002), the only species with which it could be confused is the horse leech (*Haemopsis sanguisuga*).

Hirudo decora inhabits North America, but it seems unlikely to cause problems of confusion with *H. medicinalis*.

9. References

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10. National information provided by

Azerbaijan: Rauf Hajiyev. Head of CITES Management Authority of Azerbaijan. Fax: 913 49 37 77 (40).

Bulgaria: Ass. Prof. Dr. Ivanka Janeva, Institute of Zoology – Bulgarian Academy of Science. 1, Tsar Osvoboditel Blvd., Sofia 1000. Bulgaria. vanianeva@yahoo.com

Czech Republic: Ing. Adamova. Agency for Nature Conservation and Landscape Protection of the Czech Republic. 130 23 Prague 3, Kalisnicka 4-6. P.O Box 85, cites@nature.cz, renata_adamova@nature.cz

France: Geneviève Humbert. Officer in charge of the CITES Scientific Authority of France. Muséum National D'Histoire Naturelle. Département Ecologie et Gestion de la Biodiversité. 61, rue Buffon. 75005 Paris. France. humbert@mnhn.fr

Georgia: Ms. Sophiko Akhobadze. Deputy Minister. Ministry of Environment Protection and Natural Resources of Georgia. Scientific Authority of Georgia.

Hungary: Levente Korsi. Ministry of Environment and Water. Department of International Treaties on Nature Conservation CITES Management Authority. 1121 Budapest Klto u. 21. Hungary. korosil@mail.kvvm.hu. Information compiled by Mrs Andrea Navratil; CITES Scientific Authority of Hungary. navratil@mail.kvvm.hu under the title "The taxonomy, status, trends, protection and utilisation of the medicinal leech (*Hirudo medicinalis*) in Hungary."

Ireland: Dr. Colmán Ó Críodáin. Inventory of Species and Species Unit. Research and Conservation Science. National Parks and Wildlife Service. 7 Ely Place. Dublin 2. Ireland. colman_o'criodain@environ.ie

Latvia: Gunta Gabrane. CITES Management Authority of Latvia. gunta.gabrane@dap.gov.lv, with information collated by Martins Kalnins, Dabas aizsardzïbas parvalde (Nature Protection Board), Eksporta iela 5, Riga, LV-1010. martins.kalnins@dap.gov.lv (*The distribution and ecology of medicinal leech* Hirudo medicinalis *Linnaeus, 1758 (*Hirudinea: Arhynchobdellae*) in Latvia*).

Lithuania: Ministry of Environment of the Republic of Lithuania (CITES Management Authority). Mr Eugenijus Leonavicius, Chief Desk Officer of Biological Diversity Division. A. Jaksto str. 4/9, LT-01105 Vilnius. Lithuania. e.leonavicius@am.lt

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SUMMARY OF TRADE IN *HIRUDO MEDICINALIS*

COUNTRY	IMPORT DATA				EXPORT DATA			
	Total No. of specimens	Total in kg	Total No. of wild specimens	Total of wild specimens in kg	Total No. of specimens	Total in kg	Total No. of wild specimens	Total of wild specimens in kg
TURKEY	1.201.533,0	43.996,5	124.270,0	31.989,0	0,0	41.662,5	0,0	41.662,5
FRANCE	726.625,0	22,0	37.470,0	0,0	1.036.040,0	0,0	0,0	0,0
UNITED KINGDOM	184.797,0	69,0	0,0	0,0	115.377,0	37,3	0,0	0,0
RUSSIAN FEDERATION	239.500,0	7.010,0	0,0	5.755,0	259.500,0	1.306,0	0,0	0,0
UKRAINE	108.500,0	0,0	0,0	0,0	161.000,0	0,0	0,0	
ROMANIA	0,0	2.590,0	0,0	2.590,0	0,0	860,4	0,0	860,4
GERMANY	3.165,0	0,0	500,0	0,0	0,0	990,0	0,0	
SERBIA AND MONTENEGRO	0,0	0,0	0,0	253,5	0,0	900,0	0,0	900,0
GREECE	0,0	25,0	0,0	0,0	0,0	23,0	0,0	23,0
HUNGARY	0,0	0,0	0,0	0,0	150,0	0,0	150,0	
TOTAL	**2.464.120,0**	**53.712,5**	**162.240,0**	**40.587,5**	**1.572.067,0**	**45.779,2**	**150,0**	**43.445,9**

RESUMEN DEL COMERCIO DE *HIRUDO MEDICINALIS*

Porcentajes de W sobre el total.

PERCENTAGE	IMPORT DATA				EXPORT DATA			
COUNTRY	Total No. of specimens	Total in kg	Total No. of wild specimens	Total of wild specimens in kg	Total No. of specimens	Total in kg	Total No. of wild specimens	Total of wild specimens in kg
TURKEY			10%	73%				100%
FRANCE			5%	0%			0%	
UNITED KINGDOM			0%	0%			0%	0%
RUSSIAN FEDERATION			0%	82%			0%	0%
UKRAINE			0%				0%	
ROMANIA				100%				100%
GERMANY			16%					0%
SERBIA AND MONTENEGRO								100%
GREECE				0%				100%
HUNGARY							100%	
TOTAL			**7%**	**76%**			**0%**	**95%**

EVALUATION OF *ORNITHOPTERA ALEXANDRAE* (ROTHSCHILD, 1907)

INTRODUCTION

At the 21st meeting of the Animals Committee (Geneva, May 2005), Spain volunteered to evaluate *Ornithoptera alexandrae* under the "periodic review of animal or plant species included in the CITES Appendices" [Resolution Conf. 11.1 (Rev. CoP13)].

For this purpose, Spain sent a questionnaire to the only Range state of the species, Papua New Guinea, requesting information on the following aspects:

- Current population status
- Population trends
- Habitat preferences
- National legislation covering the species
- International legislation covering the species
- National trade (legal and illegal)
- Management measures in place
- Threats
- Monitoring programmes or research projects
- Captive breeding

Papua New Guinea never answered the questionnaire or any subsequent consultations by e-mail. It has been impossible to establish contact by fax with the Scientific Authority of Papua New Guinea.

FORMAT FOR PROPOSALS TO AMEND THE APPENDICES [in accordance with Resolution Conf. 9.24 (Rev. CoP.13) Annex 6, modified]

A. Proposal

To maintain *Ornithoptera alexandrae* in Appendix I, applying Criteria A i) and v), and B i), iii), and iv) of Annex 1 (Biological criteria for Appendix I) of Resolution Conf. 9.24 (Rev. CoP13). According to this Annex, a species is considered to be threatened with extinction if it meets, or is likely to meet, **at least one** of the following criteria.

A. The wild population is small, and is characterized by **at least one** of the following:

i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or
v) a high vulnerability to either intrinsic or extrinsic factors.

B. The wild population has a restricted area of distribution and is characterized by **at least one** of the following:

i) fragmentation or occurrence at very few locations; or
iii) a high vulnerability to either intrinsic or extrinsic factors; or
iv) an observed, inferred or projected decrease in any one of the following:

- the area of distribution; or
- the area of habitat; or
- the number of subpopulations; or
- the number of individuals; or
- the quality of habitat.

Criterion C ("A marked decline in the population size in the wild, which has been **either** observed … inferred or projected…") may perhaps also be applicable. Assessments suggest that such decline is

very probably occurring, but it cannot be termed 'marked' on the basis of available information, and the proponent thus feels use of this criterion to be inappropriate for the time being.

B. Proponent

Proposal prepared by Spain.

C. Supporting statement

1. Taxonomy

1.1 Class: Insecta

1.2 Order: Lepidoptera

1.3 Family: Papilionidae

1.4 Genus, species or subspecies: *Ornithoptera alexandrae* (Rothschild, 1907)

1.5 Scientific synonym: *Aetheroptera alexandrae*

1.6 Common names:

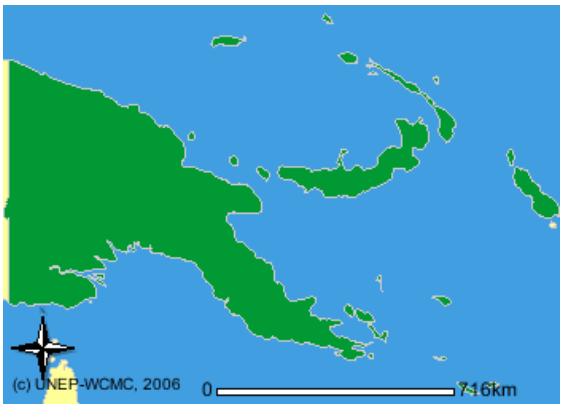
Dutch:	Alexandra's vogelvleugelvlinder
English:	Queen Alexandra's Birdwing
French:	Ornithoptère de la reine Alexandra
Italian:	Farfalla della Regina Alexandra
Local language of Popondetta:	Garava horiri
Spanish:	Alas de pájaro de la reina Alejandra

1.7 Code number: A-930.030.031.002

2. Species characteristics

2.1 Distribution

Ornithoptera alexandrae has only one range State: Papua New Guinea.



Range of *Ornithoptera alexandrae*, according to UNEP-WCMC.
The only country, in green, is Papua New Guinea.

2.2 Habitat

The small distribution of *Ornithoptera alexandrae* in Papua New Guinea is limited to the tropical forests of the Popondetta District, in Oro Province, around volcanic Mount Lamington, because the only plant *Ornithoptera alexandrae* larvae feed on (*Aristolochia dielsiana*) is particularly abundant here. Although this vine is widely distributed throughout Papua New Guinea, its

density is much greater in this particular area, as it appears to thrive on the phosphate-rich soils close to the volcano (1).

This species is highly dependent upon the presence of its host plant, which climbs as high as 30 m, clinging to the tall trees in the forest.

3. Status and trends

O. alexandrae is listed as Endangered (EN) by IUCN (2), meeting Criteria B1 + 2c, expressed as follows: B) Extent of occurrence estimated to be less than 5000 km2 or area of occupancy estimated to be less than 500 km2, and estimates indicating 1) Severely fragmented or known to exist at no more than five locations, and 2) c) Continuing decline, inferred, observed or projected, in area, extent and/or quality of habitat.

It is very difficult to estimate the population of the high-flying Queen Alexandra's birdwing, as it is hardly ever seen. The caterpillars, living many metres above the ground on the leaves of *A. dielsiana* vines, hardly facilitate population estimates.

In any case, major decline in *Aristolochia* species has been observed over the past 10 years, which doubtless influences the population and distribution status of *O. alexandrae* (3).

4. Threats

The main threat to *Ornithoptera alexandrae* is habitat loss and alteration by deforestation for the timber industry, urban development, agriculture and cattle raising, and oil palm plantations (4 and 5). Its restricted range makes it particularly vulnerable to such factors. Illicit trade is considered another threat factor for this species, which, as TRAFFIC reports, is openly offered for sale in many places in Europe (6).

5. Utilization and trade

Man’s main use for this species has been in collections, either for scientific (institutional) exhibits, or by private collectors, as a hobby.

5.1 National utilization (legal and illegal)

No information is available on national utilization or trade.

5.2 International utilization (legal and illegal)

International trade is practically non-existent (see Annex for trade data). This is partly due to the species’s listing on CITES Appendix I, and partly because Papua New Guinea’s national legislation forbids its commercialization.

Nevertheless, as mentioned above, illicit trade is assumed to exist, since the species is openly marketed internationally (6).

6. Legal instruments

6.1 National

The species is protected by national legislation in Papua New Guinea, and commercial use is prohibited. This legislation apparently prohibits capturing wild specimens of all birdwing butterflies in the genera *Ornithoptera*, *Trogonoptera* and *Troides*, with the sole exception of duly licensed garden-farms specifically equipped for this purpose, where the commercialization process begins (4).

6.2 International

- CITES Appendix I

- European Union Council Regulation (EC) nº 338/97 of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein, Annex A

7. Species management

7.1 Management measures

In the early 1970s, concerned conservationists began cultivating the food plant for *Ornithoptera alexandrae* larvae. These vines planted in gardens attracted adults to lay their eggs, thus suggesting a potential method of controlled breeding that could contribute to reinforcing wild populations and eventually provide specimens for use by man (1).

While this activity initially seems to have centred precisely around *O. alexandrae*, subsequently spreading to other species that are now in trade, Queen Alexandra's birdwing has not been subject to trade since the late 1970s.

It was not possible to obtain information on whether the host vine is still planted in breeding gardens nowadays, or if there is any ongoing activity of this type with the species. The impression is that breeding or possible population reinforcement using the methods described above may have been discontinued, discouraged by legal impediments to commercialization.

By contrast, the Embassy of Papua New Guinea for the Americas (Washington DC, United States of America), is confident that a conservation programme currently underway will ensure the survival of the species (5), although there are no details on this programme.

7.1.1 Monitoring programmes or research projects

The aforementioned embassy (5) further reports on a special field of research including detailed studies of all the birdwing butterflies and a survey of the conservation status and strategies necessary to "save" *Ornithoptera alexandrae*.

7.2 Captive breeding

According to the Embassy of Papua New Guinea to the Americas (5), in 1978 the Division of Wildlife of Papua New Guinea established the Insect Farming and Trading Agency (IFTA) in Bulolo, in the province of Morobe, to begin controlling the local insect-breeding industry and subsequent international commercialization. This agency, according to the aforementioned source, guarantees strict quality control and takes scientific information into account. It is the only organization authorized by the Government of Papua New Guinea for insect breeding and marketing.

This activity has a grassroots backing, through the local butterfly breeding industry, in a joint initiative with the East Sepik Council of Women (ESCOW), the Canadian international development agency CUSO, the Christensen Research Institute of the United States and the aforementioned IFTA (7). This work does not include *Ornithoptera alexandrae* however, and, as previously stated, trade in this species continues to be banned (IFTA e-mail).

8. Information on similar species

The genus *Ornithoptera* comprises 16 species. They all share certain colour patterns and designs. Nevertheless, the size of this species (the largest known diurnal butterfly) and several peculiarities of its design and colouring, especially in the male, make *O. alexandrae* unmistakable (8).

9. References

(1). Sands, D. (Senior Principal Research Scientist, CSIRO, Division of Entomology, Private Bag No. 3, Indooroopilly, Queensland 4068). *Communities conserve two threatened birdwing butterflies*. Link consulted on 9 April 2006: http://www.ulb.ac.be/soco/apft/GENERAL/PUBLICAT/ARTICLES/DON.HTM.

(2) IUCN 2006. *2006 IUCN Red List of Threatened Species.* < www.iucnredlist.org > . Consulted on 4 May 2006.

(3) Daisy's Forest Birdwing Butterflies website. Link consulted on 4 April 2006: http://www.geocities.com/rainforest/vines/7951/bwbtfly.html.

(4) World Rain Forest Movement website. WRM Bulletin 49, August 2001. Link consulted on 21 April 2006: http://www.wrm.org.uy/boletin/49/PapúaNG.html.

(5) Website of the Embassy of Papua New Guinea to the Americas – Washington, DC. Link consulted on 21 April 206: http://www.pngembassy.org/special.html.

(6) Melisch, R. and Schütz, P. (2000). *Butterflies and Beetles in Germany*. TRAFFIC Bulletin Vol. 18 No. 3 December 2000. Available at: http://www.traffic.org/bulletin/butterflies.html. Consulted on 12 April 2006.

(7) The Butterfly Website. Link consulted on 22 March 2006: http://butterflywebsite.com/Articles/websourced/butterflyfarm.htm.

(8) Tormo Muñoz, J.E. and Roncero Corrochano, V. (2000). *Guía de Identificación de Mariposas Protegidas por el Convenio de Washington (CITES) y la Unión Europea – Identification Guide of Butterflies Protected by the CITES Convention and the European Union*. Bilingual edition. Hill House Publishers. Melbourne & London.

Annex 1

Trade data from UNEP-WCMC

Comparative tabulation report

Year	App.	Taxon	Importer	Exporter	Origin	Imp Quantity	Imp Unit	Imp Term	Imp Purpose	Imp Source	(Re-)Exp Quantity	(Re-)Exp Unit	(Re-)Exp Term	(Re-)Exp Purpose	(Re-)Exp Source
1984	2	*Ornithoptera alexandrae*	CN	JP	XX						4		bodies	T	
1991	1	*Ornithoptera alexandrae*	US	ES	PG	2		bodies	S	U					
1992	1	*Ornithoptera alexandrae*	GB	PG		2		bodies	P	C					
1992	1	*Ornithoptera alexandrae*	US	PG		1		bodies	T	W					
2000	2	*Ornithoptera alexandrae*	US	FR	PN						2		bodies	P	R
2002	2	*Ornithoptera alexandrae*	GB	AU	PG						2		bodies		O

Gross export trade report

Taxon	Term	Country	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Ornithoptera alexandrae	bodies	AU	0	0	0	0	0	0	0	0	0	0	0	0	0
Ornithoptera alexandrae	bodies	ES	0	0	0	0	0	0	0	0	0	0	0	0	0
Ornithoptera alexandrae	bodies	FR	0	0	0	0	0	0	0	0	0	0	0	0	0
Ornithoptera alexandrae	bodies	JP	0	0	0	0	0	0	0	0	0	4	0	0	0
Ornithoptera alexandrae	bodies	PG	0	0	0	0	0	0	0	0	0	0	0	0	0

Term	Country	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
bodies	AU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
bodies	ES	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
bodies	FR	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
bodies	JP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
bodies	PG	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0

Explanatory note: This annex includes the information provided by the Scientific Authority of Papua New Guinea in response to the consultation made by Spain. It is included as an annex because it was received after the deadline for submission of documents.

16/05 2006 11:47 FAX 913493777 CITES → CARLOS IBERO 002/004
12/05 2006 09:46 FAX 3250182 DEC 001

3250182

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

OFFICE OF THE SECRETARY

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Facsimile: (675) 3250182
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Level 4 Somare Foundation
P O Box 6601,
BOROKO, NCD
Papua New Guinea

11TH May 2006

SPAIN CITES MANAGEMENT AUTHORITY
P. O. DE LA CASTELLANA, 162
28046 MADRID
SPAIN

Dear Mr. Carlos Ibero,

RE: REQUEST FOR INFORMATION ON ORNITHOPTERA ALEXANDRAE.

Please find notes on the species as requested. I also take this opportunity to apologize for failing the deadline.

Please contact Mr. Fabian Tainbari on telephone 675 325 0195 should you wish further discussions on the contents of the notes.

Mº INDUSTRIA Y C.
S.G.INSPEC. CERTIFIC. Y
ASIST.TÉCNICA
COMERCIO EXTERIOR

ENTRADA

Nº.200628100001518
12/05/06 14:20:08

DR. NAVU KWAPENA
PNG CITES SCIENTIFIC AUTHORITY (FAUNA.)

NOTES ON INFORMATION REQUEST BY CITES SPAIN.

1. **Ornithoptera alexandrae breeding/ranching.** The Australian Government funded Oro Conservations Project on the QABB (Queen Alexandra's Birdwing Butterfly) in the Northern Province from 1996 to mid -1999 was able to demonstrate that the QABB could actually be reared and bred in captivity by manipulating the conditions idle for the QABB to lay eggs, eg: temperature, light intensity etc. Technically speaking, yes, the QABE can be reared and bred. However, further confirmatory research on the QABB rearing and breeding **MUST** be the prerequisite for the proposal to down list the species to CITES Appendix II.

   The above observation was documented for an enclosed flight cage where adult female QABB were captured from the wild and released into the Flight cage where the conditions created was optimal to induce egg release by the female adult QABB.

   As for the visit at will by the adult QABB to the "gardens", the adult QABB will not visit where a visit has already being made by the other Birdwing species. It is also rare to observe the QABE lay its egg on the same host plant that already has an egg laid by another QABB. The adult QABB seem to be extremely elusive in that it conducts its activities in places not already visited.

2. **Protective Legislation.**
   The national (PNG Fauna (Protection and Control) Act) and international legislation (PNG International Trade Act) both impose total ban on the trade in the QABB, whether it is domestically or otherwise. There is NO national trade, there is NO international Trade, allowed by law.
   On the question of handling the QABB, ie capturing, breeding, killing etc, currently, approval can only be granted for Research on the species. This approval to handle the species is given by the PNG Conservator of Fauna. The Conservator of Fauna is the Head of the PNG Department of Environment and Conservation. The Conservator of Fauna is also the PNG CITES Management Authority.

3. **CITES Appendix I to CITES Appendix II.**
   I would personal find it acceptable to propose to the CITES Secretariat and thereafter to the CITES COP to transfer the QABB from its current CITES Appendix I listing to Appendix II.

   The justification for the transfer is first and foremost for the very survival of the species. Distribution Surveys to date have confirmed that the QABB is restricted to only three localities in the Northern Province of PNG where the species is endemic. Past conservation efforts by the PNG Government to conserve the QABB habitat and therefore the species will continue to fail for the simple fact that the QABB conservation efforts can not be comparable, in monetary terms, with the ever expanding agricultural oil Palm Plantations in the QABB habitats. The strategy now to conserve the QABB habitat will be to convince the CITES Secretariat through research that the QABB can actually be reared in captivity thus justifying its down-

grade from CITES Appendix I to CITES Appendix II, which will then may enable trade in the species. However, the species in question is unique in that it is the largest in the World and is still protected by National Legislation in PNG.

The QABB habitats are solely owned by traditional landowners that are easily lured to convert QABB habitats to Oil Palm establishments for cash income to sustain their livelihood. Unless some form of economical benefit is derived from conserving these last QABB habitats, the species will surely be lost forever.

The mechanics to trade the QABB will involve a strictly controlled quota system whereby framed pair of adult QABB will be actually tendered for the highest bids via the e-Bay (Internet). Only then will the Traditional Landowners appreciate the conservation of the QABB habitats.

The logic that because there has not been any trade in the QABB, the species is under no threat is absurd. Whilst no trade in the QABB has been the precedence, the QABB habitat conversion to large-scale agricultural development continues to be the real threat to the extinction of the species. The down- grading on the species on the CITES Appendix listing from I to II is therefore necessary for the very survival of the habitat and therefore the species

4. **Current population status.**
The *Ornithoptera alexandrae* also known as the Queen Alexandra's Birdwing Butterfly (QABB), is the largest Birdwing Buttery in the World, with the female measuring up to 32cm in wing span. The male can measure up to 27cm in wingspan. The QABB is found only in the Northern Province of Papua New Guinea (PNG). The QABB is found in three (3) localities in the Northern Province, on the Popondetta Plains, the Managalase Plateau and Cape Ward Hunt. The soil type in these three localities are volcanic.The Population on the Popondetta Plains is under continuous threat from Oil Palm Development and destructive Logging Practices. This Population is severely fragmented and in under enormous threat for extinction. The QABB population on the Managalase Plateau is currently under little threat from commercial developments. Human Population growth and therefore the need for more space may lead to the QABB Habitat been destroyed and eventually the Butterfly itself. The Cape Ward Hunt Population is small. Some Logging was carried out in the late 1980's. The human population density is low. The Butterfly population here is the least studied due to its' remoteness for the provincial capital.

5. **National Trade.**
Currently NO legal Trade but illegal trade is suspected. Recent direct flights out of PNG to Japan could provide an opportunity for possible smuggling.

6. **Management measures.**
Sadly, very little is been done to safeguard the habitat of this flagship species, at both national and provincial levels.

ASSESSMENT OF *CALOENAS NICOBARICA*

Taxon:	*Caloenas nicobarica*
Kingdom:	Animalia
Phylum:	Cordata
Class:	Aves
Order:	Columbiformes
Family:	Columbidae
Genus:	*Caloenas*
Species:	*nicobarica* (Linnaeus, 1758)
Subspecies:	*C. n. nicobarica* (Linnaeus, 1758), *C. n. pelewensis* (Finsch, 1875)
Common Name:	English: Nicobar pigeon, Nicobar dove
	Spanish: paloma calva, paloma de Nicobar
	French: Nicobar à camail, pigeon à camail, pigeon à collerette, pigeon de Nicobar

LISTING STATUS UNDER CITES

Caloenas nicobarica was included in Appendix I in 1979, with Switzerland entering a reservation. Palau entered a reservation to the listing in 2004, at the time of its accession to the Convention.

SPECIES DISTRIBUTION

C. n. nicobarica occurs on the Andaman and Nicobar Islands (India), Mergui Archipelago (Myeik Kyunzu) (Myanmar), islands off southwest peninsular Thailand, islands around Peninsular Malaysia, islands off southern Viet Nam, islands around Sumatra, Indonesia, islands in Wallacea and West Papua, possibly also Timor Leste, many islands in the Philippines, islands in eastern Papua New Guinea and throughout the Solomon Islands (BirdLife International, 2003; Baptista *et al*., 1997). *C. n. pelewensis* is only found on Palau Island in the Caroline Islands (United States of America).

According to the CITES Scientific Authority of Thailand, the species is found on the Surin Islands, Tarutao Islands, and several islands of southwest peninsular Thailand.

NATURAL HISTORY

The species is found only on small wooded islands in mangroves, bushes, and lowland and foothill forests up to at least 700 m. It is also found in secondary habitats and will tolerate selectively logged forest (Baptista *et al*., 1997). As a nomadic species, flocks of up to 85 birds move between islands. It breeds, often in dense colonies, on normally extremely small wooded offshore islands. It forages on the islands and adjacent mainland (or larger island) areas (BirdLife International, 2003; Baptista *et al*., 1997).

POPULATION SIZE AND TRENDS

C. n. pelewensis is currently stable (Baptista *et al*., 1997) at around 1,000 birds (BirdLife,2005). The CITES Scientific Authority of Thailand reports that the Thai population *C. n. nicobarica* is ‘reduced’.

THREATS

The Nicobar pigeon is a colonial nester that is probably vulnerable to island development. There are few recent records from many islands and the species has been extirpated from others. Habitat destruction, hunting, and trade are threats in the Philippines (Baptista *et al.*, 1997). BirdLife International identifies trapping for food, the pet trade and gizzard stones, and habitat threats such land clearance for plantations and the colonization of islands by rats, cats and other alien predators (BirdLife International, 2005).

According to the CITES Scientific Authority of Thailand, the species is threatened by habitat loss, human hunting, and the introduction of alien species.

LEGISLATION

In the Philippines, DENR Administrative Order No. 48 (13 September 1991) lists the species as a priority concern for protection and conservation. It is illegal to collect or trade the species without a permit. In Thailand, the species is prohibited from trade and protected as a 'preserved' animal under the Wild Animals Reservation and Preservation Act (WAPA 1992).

TRADE

According to UNEP-WCMC data, almost all exports between 1994 and 2004 were of captive-bred specimens.

Year	Number of live specimens exported	Percentage captive-bred	Other
1994	38	84.2	
1995	12	100.0	
1996	9	100.0	1 egg
1997	30	100.0	1 specimen (C)
1998	62	100.0	
1999	94	100.0	
2000	122	99.2	2 specimens (W)
2001	36 (1 D)	100.0	1 skin (C), 1 body (O)
2002	15 (8D)	100.0	1 specimen (C)
2003	37 (16 D)	100.0	
2004	24 (18 D)	100.0	

Birds with source code 'D' originated from Avifauna Breeding and Research Pte. Ltd., Singapore (registered facility A-SG-509), which was established in 1991. Founder stock was wild pre-Convention and captive-bred F1 specimens.

IUCN information: Listed as near threatened in 2001 (IUCN, 2006).

PRELIMINARY EVALUATION

Based on the lack of current information about population trends and estimates and the likely continued reduction of its habitat, *Caloenas nicobarica* does not appear to qualify for removal from the CITES Appendices, pursuant to Resolution Conf. 9.24 (Rev. CoP13). Nearly all trade is in captive-bred specimens, but it is unclear whether the removal of CITES prohibitions on commercial trade in wild-caught specimens would result in further harm to wild populations.

Range country respondents:

Ms. Nilubol Sirisawat; CITES Office; National Park, Wildlife and Plant Conservation Department, Bangkok, Thailand

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ASSESSMENT FOR *AGAPORNIS FISCHERI*

Taxon:	*Agapornis fischeri*
Kingdom:	Animalia
Phylum:	Cordata
Class:	Aves
Order:	Psittaciformes
Family:	Psittacidae
Genus:	*Agapornis*
Species:	*fischeri* (Reichenow, 1887)
Subspecies:	None
Common Name:	English: Fischer's lovebird Spanish: inseparable de Fischer French: inséparable de Fischer; perruche de Fischer

LISTING STATUS UNDER CITES

Agapornis fischeri was listed in Appendix II in 1981, when nearly all species of Psittaciformes were included in the Appendices. Both Switzerland and Liechtenstein entered a reservation on the listing. At CoP 12, Switzerland proposed deleting from the Appendices distinct colour morphs that are bred in captivity, including such specimens of *Agapornis* spp. The proposal was not adopted.

SPECIES DISTRIBUTION

Agapornis fischeri is found in northern and northwestern Tanzania, from Kondoa in the southeast, Serengeti National Park in the north, and Lake Manyara in the east. It may be close to the Kenyan border in some areas. Since 1970, its range has expanded into Rwanda and Burundi. Feral populations are established in the regions of Dar es Salaam and Tanga, Tanzania, and around Mombasa, Nairobi, Naivasha, and Isiolo, Kenya (Juniper and Parr, 1998). There are probably dry-season movements, although the species is sedentary (Collar, 1997; Juniper and Parr, 1998).

NATURAL HISTORY

Fischer's lovebird habitat is wooded grasslands containing *Acacia* and *Commiphora*, especially in the western part of the range. It is also found in grasslands with *Adansonia* and cultivated areas. Fischer's lovebird is generally found from 1,100 to 2,000 m. (Juniper and Parr 1998).

POPULATION SIZE AND TRENDS

The current Fischer's lovebird population is estimated at 290,205–1,002,210 birds, but the large flocks found in the 1930s are greatly reduced (Collar, 1997). However, 103,295–815,210 birds are found in protected areas. Within parts of the range, Fischer's lovebird is considered common or abundant, but it may be scarce or declining in other parts of the range, especially where low densities are attributed to trapping for trade (Collar, 1997; Juniper and Parr, 1998). IUCN (2006) considers the population to be stable.

THREATS

Fischer's lovebird is considered near threatened by IUCN due to harvesting (hunting/gathering) and past regional and international trade (IUCN, 2006). Hybridization with *Agapornis personatus* may also be affecting the population (Collar, 1997).

LEGISLATION

Range countries have protected Fischer's lovebird populations through the establishment of protected areas, which now incorporate more than half of the wild population (Collar,1997).

TRADE

According to UNEP-WCMC data, almost all exports between 1994 and 2004 were of captive-bred specimens. According to Collar (1997), the peak of trade was 87,566 specimens exported in 1987, with average annual exports of 56,481 specimens between 1982 and 1990, making it the most traded parrot in the world. Trade in wild-caught specimens was suspended in 1992, when no export quota was issued.

Year	Number of specimens exported	Percentage captive-bred
1994	10,966	97.3
1995	11,318	100.0
1996	2,246	99.6
1997	14,618	100.0
1998	45,122	100.0
1999	95,633	100.0
2000	100,873	100.0
2001	56,087	100.0
2002	49,379	99.7
2003	64,797	100.0
2004	10,289	98.1

IUCN information: Listed as near threatened in 2001 (IUCN, 2006). This species is not mentioned in the IUCN parrot action plan (Snyder *et al*., 2000).

Similarity of appearance: The two sympatric species that appear similar to Fischer's lovebird are the red-faced lovebird (*Agapornis pullarius*) and the yellow-collared lovebird (*Agapornis personatus*). However, hybrid Fischer's-yellow-collared lovebirds may occur in feral populations. Two non-sympatric species that appear similar are the black-winged lovebird (*Agapornis taranta*) and Nyasa lovebird (*Agapornis lilianae*). Captive-bred Fischer's lovebirds often have a brown crown and nape, orange-red face, and blue rump (Juniper and Parr, 1998).

Taxonomic name	Crown and nape	Eye ring	Breast	Face
Agapornis fischeri	Golden brown crown and nape	White	Golden	Orange-red face
Agapornis pullarius	Orange crown, green nape	None	Green	Red or orange cheeks
Agapornis personatus	Blackish brown head and nape	White	Lemon yellow	Blackish brown face
Agapornis taranta	Green crown and nape	None	Green	Green, orange forehead in adult males
Agapornis lilianae	Orange crown, green nape	White	Pale orange red	Orange red face

PRELIMINARY EVALUATION

Based on the limited international trade in wild-caught specimens of this species, the prominence of the species in aviculture over the last 10 years, and the protection of most of the wild population through the establishment of protected areas, *A. fischeri* appears to qualify for deletion from Appendix II of CITES, pursuant to Resolution Conf. 9.24 (Rev. CoP13). However, the Parties would need to determine whether

the differences in appearance are sufficient to prevent the confusion of this species with other *Agapornis* spp. in trade.

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REVIEW OF THE STATUS OF THE MEXICAN SALAMANDER (*AMBYSTOMA MEXICANUM*)

1. This document was prepared by the *Comisión Nacional para el Conocimiento y Uso de la Biodiversidad* (National Commission for Knowledge and Use of Biodiversity – CONABIO), the CITES Scientific Authority of Mexico, with the support of the *Instituto de Biología de la Universidad Nacional Autónoma de México* (Institute of Biology of the Mexican Autonomous University – IB-UNAM), as Annex 2 to document AC21 Doc. 11.2, submitted at the 21st meeting of the Animals Committee (AC21, Geneva, May 2005).

2. At its 15th meeting (AC15, Antananarivo, July 1999) the Animals Committee selected a group of species for inclusion in the periodic review of the CITES Appendices, to evaluate their status against the criteria contained in Resolution Conf. 9.24 (as called for in Decision 10.71). *Ambystoma mexicanum* (the Mexican salamander or axolotl, listed on Appendix II in 1975 along with the rest of *Ambystoma* spp.) was one of the species chosen for the first phase of the process. The United States of America and Mexico were originally entrusted with coordination of this review, but at AC16 (Shepherdstown, December 2000), Mexico was delegated to take on the task.

3. On the basis of this commitment, CONABIO commissioned a group of specialists from the IB-UNAM to study the "Abundance and population structure of the Mexican salamander (*Ambystoma mexicanum*) in the Xochimilco and Chalco freshwater systems" between 2002 and 2004, funded by CONABIO itself. This survey provided information on the abundance of wild populations, set basic population parameters (age structure, breeding effort, and survival) and determined present conservation status. In addition, available information on harvest and international trade was compiled and analysed. This information was used to review the status of the species in the CITES Appendices, and Mexico submitted this evaluation at the previous meeting of the Animals Committee (document AC21 Doc. 11.2, Annex 2). A summary of the main results and conclusions of the survey are attached as Annex 1 of the present document.

4. In addition to compiling and analysing this information, CONABIO also submitted at AC21 an analysis of the status of the species in Appendix II in accordance with the criteria in Resolution Conf. 9.24 (Rev. CoP13). See Annex 2 of this document.

5. In the light of the evaluation against the criteria in Resolution Conf. 9.24 and the data presented in the previous report, Mexico pointed out the need to increase protective measures for this salamander and recommended submitting the species to stricter international trade regulations, only authorizing such trade under exceptional circumstances. In this view, it would be eligible for transfer to Appendix I.

6. A Working Group (WG3) was formed at AC21 to discuss, among other issues, the status of species previously selected for the periodic review of the Appendices, including *A. mexicanum*. The group agreed that data indicated that the axolotl met the biological criteria for inclusion in Appendix I, but suggested deferring a final recommendation by the Animals Committee until the present meeting. This would give time for full consideration of the practical implications of the various options for reclassifying this species under CITES [document AC21 WG3 Doc. 1 (Rev. 1)].

7. To assist in this task, Mexico volunteered to provide an analysis of the positive and negative aspects (scenarios) associated with including the species in the different Appendices, or with removal from the Appendices. Fifteen evaluation criteria were defined to facilitate the analysis and help determine the most suitable listing (status) for the Mexican salamander in the Appendices. These covered, *inter alia*, the following considerations: enforcement of the provisions of the Convention (i.e. Articles, Resolution Conf. 9.24), benefit of conservation measures or programmes for the species, attention in terms of inspection and monitoring, administrative burden, and adverse effects derived from its status in the Appendices (e.g. increased demand, price, illicit trade).

The wording of these criteria took a positive approach, so that they could all be evaluated in the same way and the values assigned to each one could be added up. Furthermore, it was decided that they should be moderated (weighted differently), considering that some could be more relevant than others in terms of technical arrangements and of the direct or indirect positive effects they could have on the conservation of the species.

Criterion 1 – Regarding the opportunities for cooperation between *in situ* conservation programmes and *ex situ* breeders, as previously mentioned, breeding operations with significant production exist in several countries, and to date they have no direct impact on conservation programmes. Transfer to Appendix I would foster implementation of Resolution Conf. 13.9, which encourages such collaboration, while the other options (Appendix II or III, or deletion) would not.

Criterion 2 – Strict evaluation of the biological criteria contained in Resolution Conf. 9.24 (Rev. CoP13) and compliance with the fundamental principles of CITES (Article II of the text of the Convention), show that the species qualifies for transfer to Appendix I.

Criterion 3 – Comparison of the status of the species with risk lists such as the IUCN Red List [a recent evaluation placed it in the category *Critically Endangered*: CR B.2., a. and b. (iii and v)] and the Mexican list of protected species (NOM-059-SEMARNAT-2001) – where, as mentioned, work is underway to reclassify it as *Endangered with Extinction* – shows that the most coherent listing for the species would be in Appendix I.

Criterion 4 – It is considered that transferring the species to Appendix I would allow enforcement authorities to take stronger action against dealers and pay more attention to the species in Mexico and in importing countries. For example, the penal code of the United States of America (USSC Nov. 2001: §2Q2.1. *Offenses Involving Fish, Wildlife, and Plants*), states that punishment up to four times more severe would apply if a CITES Appendix-I species is involved.

Criteria 5 and 6 – Transferring the species to Appendix I would result in the need to register breeding operations that produce and export specimens for commercial purposes. This would increase the administrative burden for breeding-operations and Scientific Authorities, possibly discouraging captive breeding that might have benefited conservation of the species if linked to *in situ* conservation programmes. This would constitute an equally positive reason for maintaining the species in Appendix II, transferring it to Appendix III, or deleting it from the Appendices. Furthermore, transfer to Appendix I would generally increase the administrative burden and workload for CITES Authorities, another argument against uplisting that bears consideration.

Criterion 7 – One important fact to take into account is that international trade is not a significant risk factor for conservation of the species at the moment, being dominated by captive-bred specimens. This was thus considered an argument in favour of deleting it from the Appendices.

Criterion 8 – It has been suggested that banning trade can occasionally be counterproductive, for conservation, by increasing the price and interest in wild specimens. This was considered an equally positive argument for leaving the species in Appendix II, transferring it to Appendix III or deleting it from the Appendices; in other words, for not transferring it to Appendix I. Nevertheless, the researcher in charge of the project in Xochimilco considered this situation (increased illicit trade as a consequence of a transfer to Appendix I) unlikely.

Criterion 9 – Since another species is included in Appendix II (*A. dumerilii*), transfer of *A. mexicanum* to Appendix I could result in some problems with identification of these two species for inspection and surveillance officers. This was thus considered a positive aspect of an Appendix-II or -III listing. Likewise, if the species remains in Appendix II, it is necessary to evaluate the possibility of including the entire genus in the same Appendix, given the difficulty of distinguishing between species, especially when traded as parts, products or derivatives.

Criterion 10 – An important aspect to consider is the possibility of promoting sustainable harvest programmes for the species in the future. Although harvest is not seen to be viable at the moment, this could potentially provide incentives for *in situ* conservation (populations and habitat) through sustainable use, and could have a positive impact on local communities. Transferring the species to

Appendix I would ban exports of live specimens and discourage these types of programmes. This was thus considered a positive factor for listing on Appendix II or III, or deletion.

Criteria 11 and 12 – Keeping a record of international trade levels and trends on the species is considered very important for monitoring this aspect, which can have a direct impact on the conservation of the species. In this sense, it was considered essential to maintain international trade controls and surveillance in countries that trade in the species, especially if we realize its delicate conservation status. For this reason, deleting the species from the Appendices, with the consequent loss of this register and control, was taken as a factor against this option.

Criterion 13 – The requirement that the Scientific Authority must make a non-detriment finding before authorizing exports of specimens of this species is a fundamental element to ensure its conservation. Listing the species on Appendix III or deleting it from the Appendices would eliminate this requirement, thus constituting an equally positive factor for including the species in Appendix I or II.

Criterion 14 – Considering the current conservation status of the species, granting it the maximum degree of protection would be most suitable, and transferring it to Appendix I would be coherent with this situation. Nevertheless, the same degree of protection may also be achieved in Appendices II and III, if the country of origin applies a zero export quota on wild-collected specimens for commercial purposes.

Criterion 15 – Finally, difficulty of amendment in other words, changing the status of the species depending on the Appendix on which it is listed, was identified as an important factor to bear in mind. Thus, if the species were transferred to Appendix I, it would later be much more complicated to transfer it again to Appendix II (or to delete it from the Appendices) if considered justified or necessary. This factor should therefore be considered with great care before proposing or adopting an amendment in this sense.

Additional criteria for evaluating species status in the CITES Appendices

Criterion	Weight	App I	App II	App III	Elim.
1. Opportunity for greater cooperation and support from *ex situ* breeding operations to *in situ* conservation programmes (Resolution Conf. 13.9)	2	2			
2. Strict compliance with the biological criteria (Annex 1) of Resolution Conf. 9.24. (Rev. CoP13) and CITES Article II	1	1			
3. Coherence with risk and protection lists (IUCN Red List and NOM-059-SEMARNAT)	1	1			
4. Greater national and international attention, in terms of inspection, monitoring, sanctions, and enforcement	2	2			
5. Avoid registering breeding operations with the CITES Secretariat	1		1	1	1
6. Avoid increasing the administrative burden	1		1	1	1
7. International trade does not threaten the species	2				2
8. Avoid increasing the price of specimens and illicit trade as a consequence of the trade ban #	1		1	1	1
9. Avoid technical problems (e.g. identification of look-alike species, split-listings)	1		1	1	
10. Options for creating and encouraging sustainable harvest programmes	2		2	2	2
11. Records of international trade (levels, types…)	2	2	2	2	
12. International trade control and regulation measures in place	2	2	2	2	

Criterion	Weight	App I	App II	App III	Elim.
13. Non-detriment findings	1	1	1		
14. Grant wild populations maximum protection	2	2	2*	2*	
15. Greater facility of amending its status in the Appendices or deleting it if considered justified or necessary	1		1	1	1
	Σ	13	14	13	8

According to specialists, this is not likely to happen.

***** A zero quota could be set for Appendices II and III.

8. Based on the present analysis, the criteria evaluated suggest keeping the species in Appendix II, although differences between the advantages and disadvantages seem insignificant. As international trade does not appear to be an immediate risk factor for wild specimens, Mexico holds the view that the species should remain under the protection of CITES, in Appendix II. In this sense, the Mexican CITES Authorities are considering the option of applying a zero export quota on wild-collected specimens for commercial purposes, as a safeguard for wild populations.

Annex 1

Principal results and conclusions of the study on "Abundance and population structure of the Mexican salamander (*Ambystoma mexicanum*) in the freshwater systems of Xochimilco and Chalco"

Range – The species has a very limited range, found solely in two bodies of water in Mexico City and its area of influence. One of these bodies of water is a highly unstable system that risks running dry and disappearing.

Threats (populations and habitat) – Since before the time of Spanish colonization, both bodies of water have known human settlements and been exposed to risk factors derived therefrom, such as industrial, commercial, agricultural and fishing activities carried out in the area. Between 1980 and 1990 the change in land use resulted in an increase of the urban proportion from 11 % to 16 %, causing the ecological recovery and preservation area to drop from 87 % in 1980 to 42.2 % in 1997, the lake area being the most seriously affected. Low water quality was seen as a possible cause of fungus growth on the eggs or reduced hatching viability. Risk factors include pollution, drying, inadequate forestry exploitation, and the introduction of alien species (lilies and fish). Wild axolotl populations have been subject to exploitation for various purposes (for food, pets or research), especially on a local scale. Four-month-old salamanders can already be easily caught up in circular casting nets, and are thus subject to clandestine fishing.

Status of the wild population – Xochimilco populations have decreased significantly over the past decade. The salamanders are not evenly distributed in all the canals, as 70 % were captured in canals near the agricultural area. Based on the results of the recent study and one carried out in 1998, it was estimated that populations have declined to one-sixth of their previous size within five years.

International trade – Mexican salamanders are used for diverse purposes, such as teaching, research or pets, and as a component in traditional medicines, all of which explain their high demand on international markets (approximately 4 transactions for a total of nearly 7,500 specimens yearly), especially for live specimens (92 %). Most of the individuals traded, however (90 %), come from *ex situ* breeding operations (Australia, the Czech Republic, the United Kingdom and the United States), and are not of wild origin. The main importers are Japan (49 %), Germany (18 %), Sweden (12 %), the United Kingdom (6 %), Canada (5 %) and the United States (5 %). Most of these transactions are for commercial purposes (63 %) and for research (24 %). This would lead us to observe that wild harvest for international trade is now practically non-existent, although there is potential for future demand, especially for purposes of research and breeding. The possibility that farms will eventually require some imports of wild individuals to enhance their genetic heritage cannot be disregarded.

Illicit international trade – International demand is apparently supplied by ranch production, but records of illicit trade do exist. Three illegal transactions have been documented with Mexican specimens (derivatives and eggs), and four more involving other exporters averaging 160 live specimens/year have also been recorded, although their origin is unknown. In the past eight years, PROFEPA (the Mexican Law Enforcement Authority) has confiscated 128 salamanders at different ports of departure from the country, but with no specification as to whether they were *A. mexicanum*. International demand possibly does not differentiate between salamander species, as they are very similar.

National illicit trace – Illicit trade persists in Mexico, especially at the local level where some groups of fishermen supply salamanders clandestinely. However, this activity has apparently decreased, perhaps in conjunction with legal protection measures, stricter inspection and surveillance, and difficulty of harvest.

Captive breeding (*in situ*) – At least two farms breed the species in Mexico City, at two different university departments (the *Facultad de Estudios Superiores Iztacala de la UNAM* and the *Universidad Autónoma Metropolitana Xochimilco*). These and other farms conduct research, while also supplying specimens for national and international markets.

Conservation and protection – *Ambystoma mexicanum* is protected under Mexican legislation, classified as a species subject to special protection on the list of species at risk (NOM-059-SEMARNAT-2001). Due to its critical population status, and the severity of the factors threatening its habitat and wild populations, work is in progress on transferring it to the category of species at risk of extinction. This will provide it with the maximum degree of protection. Some populations are protected within the Xochimilco

Ecological Park, which has a recovery plan including a project for conservation of the axolotl. Additionally, the Darwin Initiative Project of the Government of the United Kingdom was instrumental in drawing up a National Plan of Action for the Management and Conservation of the Salamander in Xochimilco.

Conclusions – From the information presented, it is clear that the main threat facing the species is related to the loss and alteration of its habitat, possibly followed by other factors such as the introduction of alien species and illegal captures of wild specimens for largely local use. This means that international trade does not represent a significant threat to the species at present, although potential reactivation of such trade in the future may constitute an additional risk factor that could contribute to worsening the axolotl's delicate conservation status.

Annex 2

Evaluation of *Ambystoma mexicanum* based on the biological criteria for inclusion of species in Appendix I contained in Resolution Conf. 9.24 (Rev. CoP13)

A. The wild population is small, and is characterized by at least one of the following:

i): an observed, inferred or projected decline in the number of individuals or the area and quality of habitat

The collection data on *A. mexicanum* in this investigation, compared with the data from five years ago, suggest that the population density has decreased sixfold. On the other hand, the information on the quality of the water in the system indicates a severe deterioration in the habitat. The water has high levels of heavy metals, ammonia nitrogen and pathogenic bacteria, which have a direct impact on the health of the salamanders.

ii): each subpopulation being very small

The same density data suggest that the population in Xochimilco is very small. The difficulty in collecting, resulting from the low densities, has meant that the collections had to be carried out by fishermen with experience. Even with their participation, salamanders were not collected in high densities. Therefore, the population in Xochimilco may be considered very small (0.001 specimen/m^2). Although censuses were not carried out in the populations in Chalco, this system's variability as to quantity and quality of water justifies the conclusion that the few salamanders encountered are also part of a reduced sub-population.

iii): a majority of individuals being concentrated geographically during one or more life-history phases

Study of the life table of the salamanders suggests that the greatest vulnerability of the species occurs in the very early stages of life, with the rate of population growth depending fundamentally on the survival of these animals in their first year of life. At this stage they are faced with many more dangers than when they are adult, such as: predation of the eggs by insects and fish (including alien ones), death from contamination by fungus or by heavy metals (the eggs are very susceptible to contamination), and fishing (the majority of those captured are less than one year old).

The susceptibility in the salamander's rate of growth is concentrated in the early stages of life, which involves the greatest number of threats, both natural and caused by man. This makes them very vulnerable to the effects produced by human activity, both in Xochimilco and in Chalco.

Under this criterion, the following factors may be affecting the survival of the salamanders:

- Clustering
- Special niche requirements (in particular the need for submerged plants)
- Fragmentation of habitat
- Threats of disease
- Threats from introduced species
- Threats of a rapid environmental change (in particular of the water regime)
- Selective capture (in particular of specimens less than one year old).

B. The wild population has a restricted area of distribution and is characterized by at least one of the following:

***i):* fragmentation or occurrence at very few locations**

The salamanders are clustered in Xochimilco in very few locations. The great majority of the canals do not have salamanders, or else have them only very sporadically. However, there are few locations in the canals where the salamanders can survive. These locations have been confirmed not only by the collections carried out but also by the experience of the fishermen who are familiar with the locations where they do cluster.

ii): large fluctuations in the area of distribution or the number of subpopulations

The body of water in Chalco changes significantly in response to human needs both for cultivation and for the residential area. Consequently, in years of severe drought, this aquatic system shrinks almost to the point of disappearing. It is highly possible that this affects the salamander populations to a significant degree.

As for Xochimilco, the squatter settlements are causing severe shrinkage of the protected natural area where the salamander lives.

iii): a high vulnerability to either intrinsic or extrinsic factors

The clustering in only a few canals makes their presence well known to the clandestine fishermen. In consequence the salamander populations have a high vulnerability to fishing. When the fishermen need salamanders, they know the specific locations where they congregate, and they may be reducing the abundance of the populations of this species. On the other hand, the poor quality of the water may be a factor causing disease in the salamanders. Some of the chemical pollutants in the water are at extremely high levels and may be the reason for the low survival of these animals in certain areas of Xochimilco.

Under this criterion the following factors may be affecting the survival of the salamanders:

- Clustering
- Selective capture (in particular of specimens less than one year old).

iv): an observed, inferred or projected decrease in any one of the following:

The area of distribution. The squatter settlements are causing severe shrinkage of the protected natural area where the salamander lives. The need for water in the Chalco region may in the future affect its capacity to retain water, and may cause the disappearance of the second body of water where these animals survive.

The area of habitat. The clustering of the salamanders in just a few canals suggests that its habitat is diminishing. It is possible that the large quantity of carp introduced may be causing a decrease in the quantity of submerged plants, which serve both as a refuge and as a source of food for the salamanders.

The number of individuals [see criterion A (i)].

The quality of habitat [see criterion A (i)].

The recruitment [see criterion A (iii)].

C) A marked decline in the population size in the wild, which has been either:

i): observed as ongoing or as having occurred in the past (but with a potential to resume). (See criterion A. i)

ii): inferred or projected on the basis of any one of the following:

A decrease in area of habitat. (see criteria A and B iv).

A decrease in quality of habitat (see criteria A and B iv).

A high vulnerability to either intrinsic or extrinsic factors. The carp, the tilapia and the bass are introduced species occurring in high densities in the lakes of Xochimilco and Chalco. These three species may be preying on eggs and juvenile salamanders, while the carp may also be competing for food.

Review of the status of the Central American river turtle (*Dermatemys mawii*)

1. This document was prepared by the *Comisión Nacional para el Conocimiento y Uso de la Biodiversidad* (CONABIO – National Commission for Knowledge and Use of Biodiversity), CITES Scientific Authority of Mexico, with the support of specialists and authorities from Mexico, Guatemala and Belize.

2. At its 15th meeting (Antananarivo, July 1999) the Animals Committee selected a group of species for inclusion in the periodic review of the CITES Appendices, to examine their status against the criteria in Resolution Conf. 9.24. *Dermatemys mawii* (listed in Appendix II in 1981) was one of the species chosen for the first phase of the process. Guatemala was designated to coordinate this review, and at AC16 (Shepherdstown, December 2000) Mexico undertook to carry out the review in coordination with Guatemala and other regional representatives for Central and South America and the Caribbean.

3. On the basis of this commitment, CONABIO commissioned a group of researchers from the *Instituto de Historia Natural y Ecología* (IHNE – Institute of Natural History and Ecology) to study the "Current Situation of the River Turtle (*Dermatemys mawii*) Populations in the South-East of Mexico" between 2002 and 2004, funded by CONABIO itself. The aim of this study was to analyse the current situation of populations in the wild, in order to determine the most appropriate status in the CITES Appendices.

4. Mexico presented the results of this study at AC21 (document AC21 Doc. 11.2 Annex 3), along with a recommendation on the status *D. mawii* should have in the Appendices. The Animals Committee agreed that the available data indicated that the species could meet the biological criteria for inclusion in Appendix I, although information was only available on the Mexican population for this review. The Working Group requested the other range States (Belize, Guatemala and Honduras) to provide data to Mexico on their populations, for consideration at the present meeting.

5. The CITES Authorities of Mexico organized a "National workshop on the Central American river turtle (*Dermatemys mawii*): conservation status, harvest, trade and review of its status in the CITES Appendices," held in Pantanos de Centla, Tabasco, from 5 to 7 April 2006. One of the objectives of this workshop was to analyse, validate and supplement information on the species in Mexico for submission at the present meeting. There was also discussion of the advantages and disadvantages of transferring, maintaining or deleting the species from the CITES Appendices.

6. Furthermore, the Mexican CITES Authorities, in conjunction with the Mesoamerican-Mexican Biological Corridor, organized the "Guatemala-Mexico-Belize tri-national workshop for management and conservation of Morelet's crocodile (*Crocodylus moreletii*) and review of the status of the Central American river turtle (*Dermatemys mawii*) in the CITES Appendices," held in Mexico City from 25 to 27 April 2006. One aim of this workshop was to supplement the aforementioned document to include information from the rest of this animal's range. On the basis of the results, the appropriate status for this species under CITES was also discussed.

7. The results of both workshops are combined with the information submitted at AC21 and attached to the present document as **Annex 1**.

8. Additionally, on the basis of the information and discussions derived from the aforementioned national workshop, **Annex 2** of the present document is submitted as a re-evaluation of the status of this species in the CITES Appendices in accordance with the criteria contained in Resolution Conf. 9.24 (Rev. CoP13).

9. During the national workshop, participants analysed the positive and negative aspects (scenarios) associated with including the species in the different Appendices, or with removal from the Appendices, reaching the conclusion that the most suitable solution for adequate conservation and

management of the species is for it to remain in Appendix II. This analysis is submitted as **Annex 3** to the present document.

10. Based on the analysis of this information, it may be concluded that the current situation of the river turtle is delicate throughout its range, because of high levels of exploitation for subsistence consumption and regional commercialization. Other factors include a reduction in habitat area and quality, caused by human activities. In addition, available information on abundance of individuals in the wild indicates low population levels for the species in the three countries of its range.

11. At the tri-national workshop, debate centred around the status the species should have in the CITES Appendices. Like Mexico, Belize suggested maintaining it in Appendix II until a study was conducted on the current status of wild populations in this country, and until alternative preliminary national measures were taken, for recovery of the species. Guatemala was unable to express a final position on the matter, due to lack of time following the tri-national workshop. In any case, the CITES Authorities of the three countries undertook to develop and arrange a regional strategy for conservation of the species.

12. Mexico considers that the available information (including the document submitted at the previous meeting and additional data and evaluations contained in the present document) provide sufficient evidence on which to base a recommendation that the species remain in Appendix II. This status in CITES is generally considered to result in greater conservation benefits for the species at present.

Annex 1

Additional information: status of conservation, utilization and trade in the Central American river turtle (*Dermatemys mawii*) throughout its range

Dermatemys mawii is the only remaining species of the family Dermatemydidae, whose range covers Guatemala, Belize and Mexico. The species is used as a food resource by rural communities and illegally traded in the three countries, reaching high prices on national and international clandestine markets. Wild populations of this turtle are thought to have been over-harvested, and this has generated environmental legislation, as well as national and international agreements to protect the species.

Range

It is distributed throughout southeast Mexico, northern, central, and parts of southeastern Belize, and in Guatemala (see Figures 1, 2, and 3). Regarding supposed distribution in Honduras, the journal *Herpetological Review* that had mentioned the presence of this species in the country later infirmed this assertion. Honduran Authorities and recognized herpetologists corroborate the lack of records on the species there.

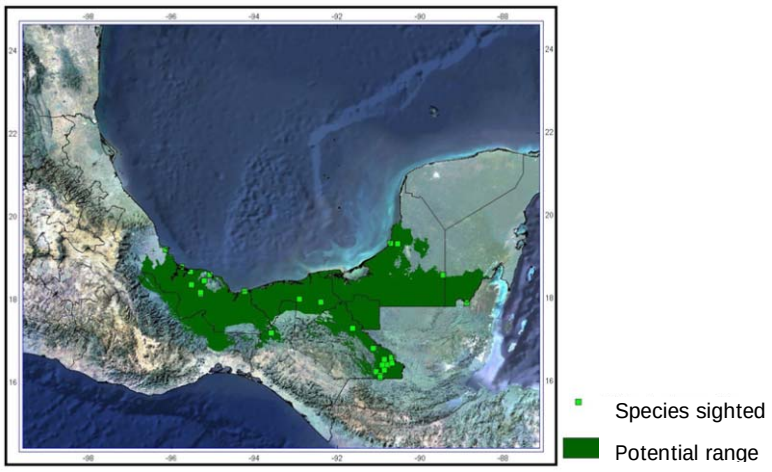

Figure 1: Potential distribution of the Central American river turtle (*Dermatemys mawii*) in Mexico calculated with GARP (Genetic Algorithm for Rule-Set Prediction) software

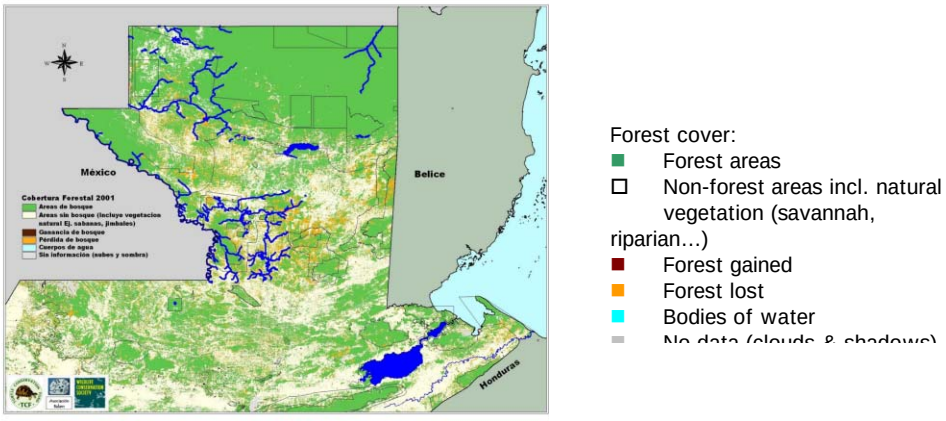

Figure 2: Current range of *Dermatemys mawii* in Guatemala
Map obtained from the presentation by the Authorities of Guatemala at the 2006 tri-national workshop

Figure 3: Current distribution of *Dermatemys mawii* in Belize
Map obtained from the presentation by the Authorities of Belize at the 2006 tri-national workshop

Abundance

***Mexico* –** The IHNE study (2002-2004) surveyed 23 routes in the States of Campeche, Chiapas, Oaxaca, Tabasco and Veracruz. A total of 20 individuals were captured (capture effort: 403 traps/day) at eight locations. In 1992, Vogt and Flores-Villela took a sample of 14 individuals from the Tzendales River in Chiapas (effort: 450 traps/day), compared to one individual captured in the aforementioned study (effort: 150 traps/day). Thus, the rate of catch per unit of effort was 0.031 in 1992 and 0.006 in 2002; a decrease of over 80 % in only 10 years. This is the only area on which information is available for a period of several years. According to the specialists who participated in the national workshop (2006), the fragile situation of the species in this region cannot be considered to reflect population status on a national scale. A large number of individuals were caught at other sites sampled recently (e.g. the lower Papaloapan River basin in Veracruz, where 200 individuals were captured in the first three months of 2006). These isolated data do not allow for comparison to estimate trends, due to differences in sampling methods and effort. Nevertheless, a general decline in population trends may be deduced on the basis of diminishing catch in spite of the same effort by fishermen.

***Guatemala* –** Although current quantitative data on population status are not available, it may be inferred that populations are decimated, particularly in the southern Petén, to the point where nowadays it is only occasionally possible to find them (Campbell, personal communication). An example is provided by a study conducted in Laguna del Tigre in 1999, where densities were so low that it was impossible to make a reliable estimate of species abundance. With the aim of obtaining up-to-date information on the status of wild populations, *Wildlife Conservation Society Guatemala* is carrying out a study on the "Distribution and Ecology of River Turtle (*Dermatemys mawii*) Populations in the Wild along the Maya Forest Corridor in Guatemala" as a part of its Programme of Living Landscapes in the Maya Biosphere Reserve (MBR). This study is being conducted in Río Azul, Lake Yaxhá in the Yaxhá-Nakun-Naranjo National Park, the San Pedro River and other bodies of water in the Laguna del Tigre National Park, the AFISAP Forestry Concession, and, possibly, Petexbatun Lagoon in the southern part of the MBR.

***Belize* –** Population surveys in Belize date back to the 1980s and 90s. In the early 1980s, *D. mawii* was still abundant in areas with scant human population and even near cities where the species was not caught for human consumption. In 1986, Moll reported a density of 2.3 individuals per hectare, which had decreased by the early 90s, chiefly in the Belize River, as John Polisar found when he conducted the most recent survey of the species to date. Although there have been no studies on the population status of the river turtle in this country since then, anecdotal information indicates that populations have declined, and are especially small in areas near human settlements.

Population structure

Mexico – Regarding age and sex ratios of the total number of individuals captured in the IHNE study (2002 and 2004), 13 (62 %) were juveniles, 5 (24 %) were adults, and 3 (14 %) were pre-adults. Of these, 20 were females and only one was male, but this population structure does not reflect the situation of the species on a national scale, according to the specialists who participated in the national workshop (2006). Individuals of all ages and both sexes have been caught in other locations, as demonstrated by the fact that individuals of all sizes and both sexes have been found on the market.

Guatemala and Belize – Current information on the population structure in these two countries is not available, as the species has not been studied recently. Nevertheless, a survey conducted by John Polisar in Belize in the early 90s demonstrated that intense and continuous hunting had not only caused a decrease in population density but also a lower proportion of adults, particularly of female turtles.

Use, harvest, and impact of human activities

The river turtle is chiefly hunted for its meat, for reasons of flavour and size, although there is also occasional consumption of the eggs. Hunting takes place year-round but is most intense during the months from March to May, coinciding with Lent and Easter, when people do not eat red meat (turtle meat is believed to be white). The months with the greatest hunting activity coincide with the dry season, when the animals migrate and gather in rings, climbing on top of each other in shallow waters, and thus it is easier to catch them. Apart from hunting, the species is endangered throughout its range due to habitat loss and transformation for agriculture, livestock and urban sprawl.

Mexico – Few communities within the range of *D. mawii* regularly catch the species for sale. In most cases, specimens are only sold when customers show an interest in acquiring them; otherwise, they are kept for local consumption (Carrillo, 2004). Prices vary seasonally, but they are significantly higher when turtles are sold outside the community. Many fishermen and members of rural communities in precarious economic circumstances catch freshwater turtles, and this provides important additional income. Informal organizations of fishermen sometimes ban together to hunt turtles, but this is normally a supplementary activity, secondary to agriculture and cattle raising (Carrillo, 2004).

With respect to different local uses, 89 % of those interviewed in the IHNE survey (2005) had used it at least once, 7 % had never used it, and 4 % did not answer. These percentages refer only to use, and they do not mean that the respondents are the actual hunters. Of the percentage that stated they had used it at least once, the overriding use was for their own consumption. However, the information provided by respondents may not be accurate, since trade in the species is not allowed. Specialists are of the opinion that the principal threat is harvest for local trade in turtle meat. The shell is also used in handicrafts and ornamental articles, but this is a secondary use after sale of the meat.

The meat of this species is expensive, as a consequence of high demand and low abundance. This makes it a very profitable product for fishermen and traders. In the Lenten period, in Tabasco, an individual weighing 10 kg can sell for between MXN 600 and 2,000 (approximately USD 50-170).

The species is also captured by burning off the vegetation (setting fires). This was shown in a study in the northeast area of the Pantanos de Centla Biosphere Reserve, in Tabasco, which reported that turtle hunting occurred in 86 % of the communities, representing a resource for use and trade. *D. mawii* is used for food, handicrafts, pets, and medicinal and breeding purposes (Zenteno, C. *et al.*, 2004).

Guatemala – In Guatemala, the civil war of the 1980s was a major cause of population reduction. The soldiers stationed in El Petén hunted hundreds of these turtles to supplement their diet. Furthermore, these animals were loaded onto trucks or even small planes and sent to Guatemala City. Although there seems to be general awareness that this turtle is protected in the country, the species continues to be exploited. In recent years, specimens have been found for sale in the following locations: east of Lake Petén-Itza, the Sarstoon River near Modesto Méndez, Mariscos on Lake Izabal, and in the Río de la Pasión near Sayaxché. In the central part of El Péten, 35- and 40-lb turtles are available at a price of approximately QGTQ 80-100 (equivalent to USD 11-13). In recent years, however, animal smuggling in El Petén has greatly decreased, which has probably meant reduced trade in *D. mawii*.

Belize – In spite of the trade ban, there is a black market in Belize City where river turtle specimens are found at prices of USD 40-60 / individual. Nearly all the rural communities eat its meat. The shell has a cultural use as a musical instrument, but this is secondary. The main use of species is in the capital, and sporadically in other cities such as Punta Gorda. Specimens sold there are taken from the Belize and Sibun River populations. River turtles are exported to satisfy the demand in neighbouring countries where the species was already rare. John Polisar conducted a study in the early 1990s to learn of exploitation patterns. The study covered the Belize River, its tributaries, five small villages, urban markets, the Río Bravo Conservation and Management Area and the Árbol Torcido Wildlife Sanctuary. Among other findings, the study demonstrated that a great tradition of consumption exists in northern Belize, where traditional hunting methods are used to capture the species (harpoons, nets and by diving) and select the largest sizes. Of the 567 individuals examined in this study, none was larger than 49 cm (the largest size ever reported was 60 cm). Peak exploitation of the species coincides with the breeding season (March to April), and consumers prefer pregnant females. This, combined with the use of dynamite to catch the species, results in overexploitation and habitat destruction in Belize.

Conservation and management status

Besides being listed on CITES Appendix II, at the international level the species has been on the IUCN Red List of Threatened Species, since 1982. Recently, in 2005, it was transferred from the category Endangered: EN, where it had been since 1996, to the category Critically Endangered: CR, which includes species that face a high risk of extinction in the wild. It is also listed under the United States Endangered Species Act (ESA), in the category of highest risk: Endangered (E), which means no product or by-product of the species may be traded in this country.

Other initiatives include that of the Turtle Conservation Fund (TCF), in collaboration with CABS (the Center for Applied Biodiversity Science), CI (Conservation International), IUCN/SSC (The World Conservation Union Species Survival Commission), TFTSG (Tortoise and Freshwater Turtle Specialist Group), and the TSA (Turtle Survival Alliance) in 2003, developing a list of the 25 most threatened freshwater turtles in the world. The Central American river turtle is on this list, with the recommendation that it could be suitable for management in captivity, to provide meat for rural and suburban inhabitants, and enable breeding and protection of wild populations in their natural habitat.

Mexico – In Mexico there has been a permanent ban on *Dermatemys mawii* hunting since 1975. The species has also been included on the Mexican list of species at risk (NOM-059-SEMARNAT-2001) since 1994, in the category Endangered with Extinction (P). This category prevents use of the species for commercial purposes. Regarding habitat conservation, there are at least four Natural Protected Areas (NPAs) covering part of the species's range. In addition, two RAMSAR sites with river turtle populations have recently been declared in the State of Veracruz: the *Humedales de Laguna Popotera* (Popotera lagoon wetlands) and the Alvarado Lagoon System. Management plans for these two sites are currently being developed, and will include specific conservation strategies for *Dermatemys mawii*.

Towards the end of 2005, the State Technical Committee for Consultation on Veracruz Wetland Protection, Conservation and Management established a working group on reptiles of economic importance in Veracruz wetlands, which included freshwater turtles. The group, comprising academic, federal government, and State authorities along with consultants specializing in wildlife management, aims to provide technical-scientific know-how to develop research, conservation, management and sustainable-use projects on these reptiles. For 2006, there are plans to generate a forum for discussion among specialists, managers and producers.

Further plans call for establishment of the Research Centre for Conservation and Management of Mexican Freshwater Turtles. The Centre's objectives will be to: (a) promote academic exchange among researchers from diverse parts of the world to collaborate on studying Mexican freshwater turtles; (b) develop a breeding programme for genetic conservation of priority species endangered with extinction, such as *Dermatemys mawii*; (c) set up a centre to gather and control confiscated and donated freshwater turtles, to integrate them into breeding programmes for conservation; (d) implement a programme for collection and control of alien species; (e) establish a training programme to build human resources in research, conservation and sustainable management of Mexican freshwater turtles; and (f) encourage the creation of farms.

Current plans also include developing a recovery project for freshwater turtles in Mexico within the framework of the Priority Species Recovery Projects – "PREPs" – coordinated by SEMARNAT.

Guatemala – The species is included in category 3 of Guatemala's Red List, and harvest from the wild is illegal. Although the species continues to be exploited in a large part of the country, settlers around some of the small lakes in El Petén actually protect it. Additionally, the alligator hunters, who were among the principal exploiters of this turtle, are disappearing from Guatemala, which may imply that there will be less pressure on the species (Campbell, personal communication). Furthermore, the species occurs in El Petén, in Laguna del Tigre, where it was recommended as a focal species for management in this park. It is also present in several of the country's protected areas, but no specific conservation programmes exist for the animal.

Belize – In 1993 Belize passed legislation regulating Central American river turtle harvest (Statutory Instrument No. 55, April 1993). The law stipulates annual limits on possession – eliminating large-scale extermination without negatively affecting local use – minimum size limits, seasonal hunting restrictions, and a total ban on any type of sale or acquisition of *Dermatemys mawii*. Specific regulations for the river turtle state that nobody may: (a) have more than three turtles in his/her possession; (b) carry more than five turtles in a vehicle; (c) capture turtles from 1 to 31 May in any year; (d) catch females larger than 43 cm (17.2 in) or smaller than 38 cm (15.2 in); (e) hunt turtles in the areas specified on the 5th page of this ordinance; or (f) buy or sell turtles. The species is also included within five Natural Protected Areas covering the entire Río Bravo system, the Cox, Mucklehany and Manatee Lagoons, as well as sections of the Belize River [the Río Bravo Conservation and Management Area, the Crooked Tree Wildlife Sanctuary (CTWS – a RAMSAR site), the Freshwater Creek Reserve, the Shipstern Butterfly Reserve and the Sarstoon-Temash Reserve].

Breeding farms and international trade

México – Thirteen establishments in Mexico have *ex situ* river turtle populations: six in Tabasco, five in Veracruz, one in Campeche and one in Morelos. The farm with the largest number of specimens, called *Granja Tortugas* (Turtle Farm) is located in Nacajuca (property of the State of Tabasco). This was the first captive-breeding and management operation for the species in Mexico, acting as a rescue centre for specimens seized by the environmental law enforcement authority (*Procuraduría Federal de Protección al Ambiente; PROFEPA*). The exact number is unknown, but the population is estimated at 800-900 individuals, mostly resulting from captive breeding (Syed and Vogt, personal communication). Results here have encouraged captive breeding, with donated specimens as the source of founder stock, and technical advisory services for management. This farm's production reached very high levels in the late 1990s, as nearly all the females were laying eggs annually. With proper feeding, it is considered that 40 adult females can produce 2,400 offspring/year. It would thus be possible to be producing 36,000 offspring/year within five years (Vogt, personal communication).

The second most important turtle farm, "SAGARO" (La Florida, Veracruz) began breeding river turtles in 1999. In its nearly 10 years of experience, it has had an average birth rate of 63 %. This is the only farm that has obtained CITES permits to export specimens since 2000. Turtles were exported to Japan in the years 2000, 2001 and 2002, under CITES permits for 50, 50 and 20 live individuals, respectively, but only 30 turtles were exported in 2001 and 12 in 2002 – all to be sold as pets. The farm now has 70 specimens (20 of the first generation and the rest from seizures and authorized catch for research). A permit was recently granted for the export of four turtles to Taiwan, Province of China, as pets.

The National Science and Technology Council (CONACyT) provided funding to establish another farm in Veracruz, in Las Margaritas, near Catemaco, but the project never reached completion and the fishermen abandoned it. Currently, attempts are underway to recover this farm as the 'Jack McCoy Centre for conservation and management of neo-tropical turtles'. Its main objective is to reproduce freshwater turtles for the international pet trade, and contact has apparently already been made with importers abroad who are interested in *D. mawii* .

At present, the Working Group on reptiles of economic importance in the Veracruz wetlands has a programme to correct the status of more than 10 river turtle farms not yet officially constituted as UMAs (Units for Wildlife Conservation, Management and Sustainable Use) The intention is to legalize them this year.

It must be noted that none of the farms established has been able to obtain second-generation (F2) offspring, as this species takes a long time to reach sexual maturity (estimated at 6-7 years of age). Representatives from farms who participated in the national workshop (2006) are aware of the critical situation facing the river turtle in the wild. They expressed interest in and willingness to contribute to the conservation of wild populations by taking action in various areas. They mentioned providing financial and human resources to conduct studies, capacity building for other potential breeding operations, re-populating/re-introducing where appropriate, establishing educational programmes and organizing an awareness campaign, among other activities.

Some exports for research purposes have also taken place. This year, interdigital tissue was authorized for export to the United States of America. Mexico has granted no export permits other than these, and individuals taken directly from the wild have not left the country legally.

***Guatemala* –** No river turtle breeding operations are registered or even known in this country. There is only one zoo in Guatemala City with one Central American river turtle. For this reason, since it is illegal to hunt the species in the wild, the Guatemalan Authorities have never issued a CITES permit to export specimens.

***Belize* –** No records of establishments breeding the species in this country were available, either.

Illicit trade

***Mexico* –** The Mexican environmental law enforcement agency, PROFEPA, made 27 seizures between 2001 and 2005, amounting to 258 live animals and five products such as shells. PROFEPA is in charge of different inspection activities within the river turtle's range, such as: (a) attending to wildlife claims; (b) tight control over road traffic in the South-Southeast and inspections of Wildlife Conservation Management Units; and (c) working with communities by forming participatory environmental surveillance committees. Other action includes the case of *D. mawii* specimens of illegal origin found in Japan prior to the first shipment from the SAGARO farm. This situation was reported to PROFEPA, and it was discovered that these specimens had reached Japan via Peru.

Smuggling from Guatemala to Tabasco has also been documented. In the 1980s, these specimens were simply brought into the country on motor vehicles. Now that a surveillance post has been installed on the Palenque road, in Chiapas, small boats carry them up the Usumacinta River and drop them off at different points along the way. Most of these turtles are delivered directly to restaurants or intermediaries in Villahermosa that sell them to their customers (Vogt, personal communication). In an April 2003, Dr Vogt, Víctor González, former fishery chief at Playas de Catazajá in the 1980s, declared in an interview that nearly all the *Dermatemys* sold and consumed in Villahermosa over the previous five years had come from Guatemala on the Usumacinta, since there were no more specimens left for sale in Tabasco or Chiapas (Vogt, personal communication).

With the aim of improving law enforcement in Mexico, in May 2005 a theoretical-practical capacity-building course on identification, management and conservation of freshwater turtles from south-southwestern Mexico was conducted in Villahermosa, Tabasco, for PROFEPA inspectors. Results of this workshop included identification of the main illegal trade routes for freshwater turtles and the different ways they are traded.

***Guatemala* –** Some restaurants in Guatemala City still serve turtle soup, and turtle shells can be seen hanging on the walls (Campbell, personal communication). Furthermore, records show recent seizures of individuals, and smuggling of turtle meat over the Mexican border is known to continue.

***Belize* –** Although trade is forbidden, there is a black market in Belize City where river turtle specimens can be found.

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Annex 2

Re-evaluation of *Dermatemys mawii* based on the biological criteria for inclusion of species in Appendix I contained in Resolution Conf. 9.24 (Rev. CoP13)

A. The wild population is small, and is characterized by at least one of the following:

While no estimate is available on the size of the wild population of *D. mawii* (understood as the total number of individuals of the species that freely inhabit their range), certain elements lead us to conclude that it is not small, in the strict sense, nor in comparison with other species. This claim is based on (a) the additional information on other studies of the species in Mexico compiled and attached to the present document, (b) the potential range covering three countries, (c) records of new locations with a significantly higher abundance than at previously sampled sites; and (d) the opinion of the specialists consulted.

B. The wild population has a restricted area of distribution and is characterized by at least one of the following:

Distribution maps indicate that the species covers a significant area of Mexico, Guatemala and Belize. It can be found in most of the bodies of water and rivers within the range shown on the maps. Therefore, the species cannot be considered to have a restricted area of distribution.

C. A marked decline in the population size in the wild, which has been either:

i): observed as ongoing or as having occurred in the past (but with a potential to resume).

According to several studies conducted in **Mexico** (see text of the document), the species has shown a marked decline in its population size in some of the areas sampled, chiefly through illegal national hunting and trade. Populations in the States of Veracruz and Tabasco were formerly known to be abundant, as fishermen used to collect hundreds of individuals on a single day. In Chiapas, according to data from the State fisheries department, fishermen used to catch around 3000 kg (200 turtles) each season, and in the Catazajá region up to a thousand turtles could be caught per lake in a season. These amounts would be impossible nowadays, which is a clear indicator of an important reduction in populations. **Guatemala** was unable to provide current quantitative data, but decimated populations may be inferred, particularly in El Petén, since they are now only encountered occasionally. In fact, a herpetological survey conducted in Laguna del Tigre found such low densities of *D. mawii* that it was impossible to make a reliable estimate of species abundance. With no recent data or systematic monitoring on the status in **Belize**, the species was known to be abundant in the early 1980s, in areas of sparse human settlement or near towns where it was not used for food, but a later study carried out in the Belize River and its tributaries (early 1990s) indicated a population decrease, and this situation is corroborated by anecdotal information.

ii): inferred or projected on the basis of any one of the following:

***– levels or patterns of exploitation*:** At present, it is impossible to define an accurate overall population trend, having only isolated data (the results of projects that used different sampling methods and varied levels of harvest effort). However, the available information on the three countries does provide a basis for deducing a general decline in population trends, considering other factors. According to specialists, several indirect indicators suggest a marked decline in the population size in the wild. These include circumstances associated with an increased fishing effort (e.g. travelling further, using more sophisticated fishing gear, increased prices for the species on the market) and data reflecting differences in the population structure (e.g. predominance of juveniles, smaller average size).

Annex 3

Evaluation of D*ermatemys mawii* in the CITES Appendices based on supplementary criteria (analysis of scenarios)

Sixteen evaluation criteria were defined to facilitate analysis and help determine the most suitable listing (status) for the species in the Appendices. These covered, *inter alia*, the following considerations: enforcement of the provisions of the Convention (i.e. Articles, Resolution Conf. 9.24), benefit of conservation measures or programmes for the species, attention in terms of inspection and monitoring, administrative burden, and adverse effects derived from its status in the Appendices (e.g. increased demand, price, illicit trade). The wording of these criteria took a positive approach, so that they could all be evaluated in the same way and the values assigned to each one could be added up. Furthermore, it was decided that they should be moderated (weighted differently), considering that some could be more relevant than others in terms of technical arrangements and of the direct or indirect positive effects they could have on the conservation of the species.

Criterion 1 – The first criterion evaluated relates to the opportunities for cooperation between *in situ* conservation programmes and *ex situ* breeding operations. As there is no knowledge of the existence of breeding operations in other countries, it was considered that transfer to Appendix I would not bring additional benefits to *in situ* conservation programmes through the implementation of Resolution Conf. 13.9, which promotes such collaboration.

Criterion 2 – Upon strict evaluation of the biological criteria contained in Resolution Conf. 9.24 (recently amended at CoP13) and compliance with the fundamental principles of CITES (Article II of the text of the Convention), the information available for the species indicates that it qualifies for transfer to Appendix I.

Criterion 3 – Comparison of the status of the species with risk lists such as the IUCN Red List and the Mexican list of protected species shows that the most coherent listing of the species would be in Appendix I. [A recent IUCN evaluation (2005) places the species in the category *Critically Endangered*: CR A.2.a., b., d. and 4.d. According to the Mexican NOM-059-SEMARNAT-2001, the species is *Endangered with Extinction* in the country.]

Criterion 4 – In general terms, it is considered that transferring the species to Appendix I would allow enforcement authorities to take stronger action against dealers and pay more attention to the species in Mexico and in importing countries. As the evaluators judged this criterion less relevant for the conservation of this particular species, it was given a low weight, although it could be taken as an argument in favour of transfer to Appendix I.

Criteria 5 and 6 – Transferring the species to Appendix I would result in the need to register breeding operations that produce and export specimens for commercial purposes. This would increase the administrative burden for breeding operations and Scientific Authorities, possibly discouraging captive breeding that could have been of potential benefit to the species if linked to *in situ* conservation programmes. This would constitute an equally positive reason for maintaining the species in Appendix II, transferring it to Appendix III, or deleting it from the Appendices. Furthermore, a transfer to Appendix I would generally increase the administrative burden and workload for CITES Authorities, another argument against uplisting.

Criterion 7 – A discussion of the role of CITES in the conservation of this species revealed that international trade is not the most important risk factor for conservation of the species at the moment, since the main threat is derived from collection and trade at the national level. For this reason, the prevailing view held that transfer to Appendix I would not have the desired effect on the species. Nevertheless, some small international demand for specimens does exist, and in this context, the Convention would have a role to play in controlling trade.

Criterion 8 – It has been suggested that banning trade can occasionally be counterproductive for conservation, by driving up the price and raising interest in wild specimens. However, the evaluators felt it unlikely that including the species in Appendix I, II or III, or deleting it from the Appendices, would have any repercussions in this sense, so the evaluation did not take this criterion into account.

Criterion 9 – Since the species shows characteristics that distinguish it from all other species in trade, it was considered that including the species in Appendices I, II or III, or deleting it from the Appendices, would not cause problems with identification of this or other species by inspection and surveillance officers. Therefore the evaluation did not take this criterion into account.

Criterion 10 – An important aspect to bear in mind in this evaluation was the possibility of promoting sustainable harvest programmes for the species in the future. Although harvest is not seen to be viable at the moment, this could potentially provide incentives for *in situ* conservation (populations and habitat) through sustainable use, and could have a positive impact on local communities. Transferring the species to Appendix I would ban exports of live specimens and discourage these types of programmes. This was thus considered a positive factor for inclusion in Appendix II or III.

Criteria 11 and 12 – Keeping a record of international trade levels and trends on the species was judged very important for monitoring this aspect, which can have a direct impact on the conservation of the species. Consequently, international trade controls and surveillance are essential in countries that trade in the species, especially in light of its delicate conservation status. Removing the species from the Appendices would mean losing this register and control, which was taken as a factor against this option.

Criterion 13 – The requirement that the Scientific Authority must make a non-detriment finding prior to authorizing exports of specimens of this species is a fundamental element to ensure its conservation. Including the species in Appendix III or deleting it from the Appendices would eliminate this requirement, constituting an equally positive reason to include the species in Appendix I or II.

Criterion 14 – Given the current conservation status of the species, the maximum degree of protection would be most suitable, and transferring it to Appendix I would be coherent with this situation. Nevertheless, the evaluators agreed that absolute protection of the species would not be realistic, even if it were listed on Appendix I, and therefore this criterion was considered irrelevant for evaluating the status of the species in CITES.

Criterion 15 – Finally, difficulty of amendment in other words, changing the status of the species depending on the Appendix in which it is listed, was identified as an important factor to bear in mind. Thus, if the species were transferred to Appendix I, it would later be much more complicated to transfer it again to Appendix II (or to delete it from the Appendices) if considered justified or necessary. This factor should therefore be considered with great care before proposing or adopting an amendment in this sense.

Criterion 16 – Finally, potential impact of transferring the species to Appendix I was analysed in terms of facility of implementation of recovery programmes for the species. In view of the series of restrictions and limitations imposed by an Appendix-I listing, the evaluators agreed that keeping it in Appendix II, transferring it to Appendix III or even deleting it altogether from the Appendices would facilitate such tasks.

Criterion	Weight	App. I	App. II	App. III	Elim.
1. Opportunity for greater cooperation and support from *ex situ* breeding operations to *in situ* conservation programmes (Resolution Conf. 13.9)	2				
2. Strict compliance with the biological criteria (Annex 1) of Resolution Conf. 9.24. (Rev. CoP13) and CITES Article II	1	1			
3. Agreement (coherence) with risk and protection lists: IUCN Red List and NOM-059-SEMARNAT	1	1			
4. Greater national and international attention, in terms of inspection, monitoring, sanctions, and enforcement	1	1			
5. Avoid registering breeding operations with the CITES Secretariat	1		1	1	1
6. Avoid increasing the administrative burden	1		1	1	1

Criterion	Weight	App. I	App. II	App. III	Elim.
7. International trade is not the main threat to the species	2		2	2	
8. Avoid increasing the price of specimens and illicit trade as a consequence of the trade ban	1				
9. Avoid technical problems (e.g. identification of look-alike species, split-listings)	1				
10. Options for creating and encouraging sustainable harvest programmes	2		2	2	
11. Records of international trade (levels, types...)	2	2	2	2	
12. International trade control and regulation measures in place	2	2	2	2	
13. Non-detriment findings	1	1	1		
14. Maximum protection for wild populations	2				
15. Greater facility of amending its status in the Appendices or deleting it if considered justified or necessary	1		1	1	1
16. Facility of implementing recovery programmes for the species	1		1	1	1
	Σ	8	13	12	4

The analysis contained in the preceding paragraphs and outlined in Annex 2 shows that the criteria evaluated suggest retaining the species in Appendix II.