

FIRST INFORMATION ON THE TRADE OF FRESHWATER TURTLES IN PALAWAN

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Abstract - Collection for trade is the most significant threat to most species of freshwater turtles and tortoises in Asia making their survival outlook of great concern. Collection and trade of freshwater turtles in Palawan was studied using interviews conducted in September and October 2003 in selected municipalities and in the City of Puerto Princesa. Five species, namely the Southeast Asian Box Turtle *Cuora amboinensis*, the Leyte Pond Turtle *Heosemys leytensis*, the Asian Giant Softshell Turtle *Pelochelys cantorii*, the Asian Leaf Turtle *Cyclemys dentata*, and the Malayan Softshell Turtle *Dogania subplana* are known to occur in Palawan, of which all are IUCN listed and the trade of the first three species is regulated under CITES. No evidence was found for the occurrence of *P. cantorii* but interviewees indicated that all other four species are collected in Palawan for either local or international trade, for own consumption, medicinal uses and as pets. *C. amboinensis* and *C. dentata* are locally sold for PhP 50-60/individual (US\$ 1). *D. subplana* is collected and eventually also sold (PhP 20-50/ind.) for local consumption within Bataraza. Trade of this species to Japan of unknown extent exists in Rizal, where animals are sold for up to PhP 1000 per individual. It was remarkable to find numerous *H. leytensis* in captivity since this species is critically endangered and CITES regulated. *H. leytensis* is collected for subsistence consumption and lately also for the international pet trade. It is locally sold for PhP 70-100 per animal. Its recent rediscovery and its reputation as being extremely rare make it extremely valuable in the international pet trade.

INTRODUCTION

About 100 freshwater turtle species are native to Asia, and new species continue to be described (van Dijk 2000). Six species of freshwater turtles (*Cuora amboinensis*, *Cyclemys dentata*, *Heosemys leytensis*, *Heosemys spinosa*, *Dogania subplana* and *Pelochelys cantorii*) are known to occur in the Philippines (van Dijk 2000); all except *H. spinosa* are found in Palawan (Diesmos and Palomar 2004) with *H. leytensis* being a critical endangered Palawan endemic species (Diesmos *et al.* 2004).

Freshwater turtle and tortoise populations have been declining at an alarming rate throughout the world in recent years (Ernst and

Barbour 1989). IUCN (2003) includes a total of 88 Asian species, of which 19 are critically endangered, 27 endangered, 22 vulnerable, 14 at lower risk and six considered data deficient. This is an enormous increase considering that the 1996 IUCN list included only 33 species under the different threatened categories. In a threat analysis TRAFFIC (2001) revealed that exploitation of turtles by humans, for subsistence consumption and/or trade is the cause of endangerment of 81% of all Asian IUCN listed species. Other threats involve habitat degradation and loss, and introduction of exotic predators and competing species. Although trade in turtles has probably occurred since historical times (Compton 2000), the

increasing volume collected for trade has resulted in the removal of many adults from the population, and the gathering of eggs and juveniles has reduced the rate of replacement of those adults that die of natural causes (Ernst and Barbour 1989).

All South, Southeast Asian and East Asian countries from India to Papua New Guinea are involved in the regional turtle trade. This involvement varies between source countries, consumer markets for domestic and non-native species, trans-shipment points between source and market countries, and simply exporters (Compton 2000). Today there is no vertebrate group that is facing a greater survival problem than freshwater turtles and tortoises (Behler 2000). During the workshop on conservation and trade of freshwater turtles and tortoises in Cambodia in 1999, delegates recognized that trade is the major concern for the conservation of tortoises and freshwater turtles in the region, and therefore recommended studies on the trade in both source and consumer countries as a priority research area (Asian Turtle Trade Working Group 2000).

No data on trade exist for the six Philippine species (van Dijk *et al.* 2000, CITES 2002a, 2002b, Rhodin 2003). The present study provides the first data on the trade of freshwater turtles in Palawan.

METHODS

The study was conducted in Puerto Princesa City in central and in the municipalities of Brooke's Point and Bataraza in southeastern Palawan, Philippines (Fig. 1). In Brooke's Point and Bataraza interviews with at least five people were conducted in each locality. Any person who could provide information on trade of freshwater turtles was considered a respondent. In Barangay Irawan, Puerto Princesa City, one farmer family was interviewed. Interviewees were shown laminated photographs of the Palawan species in order to facilitate proper identification. All other information is based on the private collection of one person in Puerto Princesa City who keeps freshwater turtles in a restaurant and in her residence.

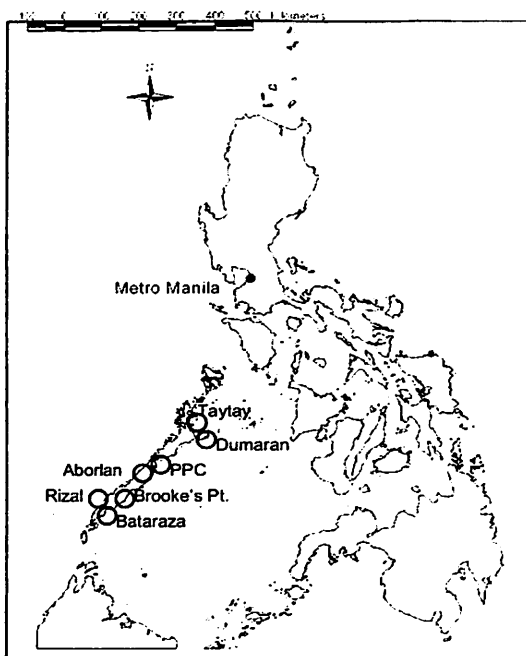


Figure 1. Map of the Philippines showing in Palawan all locations mentioned in text.

The study was conducted in September and October 2003 after initial observations in April 2002. The assessment of trade consisted of an informal set of questions that allowed the interviewer to obtain information on aspects the respondents might not reveal in a questionnaire (Mugenda and Mugenda 1999). Information on sale prices is given in the local currency (PhP). The exchange rate at the time of the study was 1US\$ = 57 PhP.

Interviews were also conducted with personnel from three Palawan environmental agencies / institutions such as the Provincial Office of the Department of Environment and Natural Resources (PENRO), the Palawan Council for Sustainable Development Staff (PCSDS) and Conservation International (CI). Furthermore all (three) existing pet shops in Puerto Princesa City were visited.

RESULTS AND DISCUSSION

The interviews revealed that the freshwater turtles *C. amboinensis*, *C. dentata*, *H. leytensis* and *D. subplana* are readily available and collected in Palawan. No evidence was found for the occurrence

of *P. cantorii* in the study sites. The locals were well capable of differentiating between the species, but use only one local name for all hard-shelled species ("Pagong" in Tagalog or "Bao" in Cebuano or "Bayo" in Palawan dialect), while the soft-shelled species, *D. subplana*, is called "Labe" in Tagalog.

A total of 126 animals were encountered in captivity in a restaurant in Puerto Princesa City or in the house of the restaurant owner, held as stock for the restaurant, or as pets and guest attraction, respectively. Several visits to the restaurant over the past two years have shown that the number of individuals in the place changed, indicating potential trade activity. For example, in April 2002 at least 100 freshwater turtles were seen in the restaurant, but in September 2003 only 63 (34 *H. leytensis*, 23 *C. amboinensis*, and 6 *C. dentata*) remained.

Seventy-six *H. leytensis* were encountered in captivity, 34 in a restaurant in Puerto Princesa, and 42 on the private property of the restaurant owner. According to the

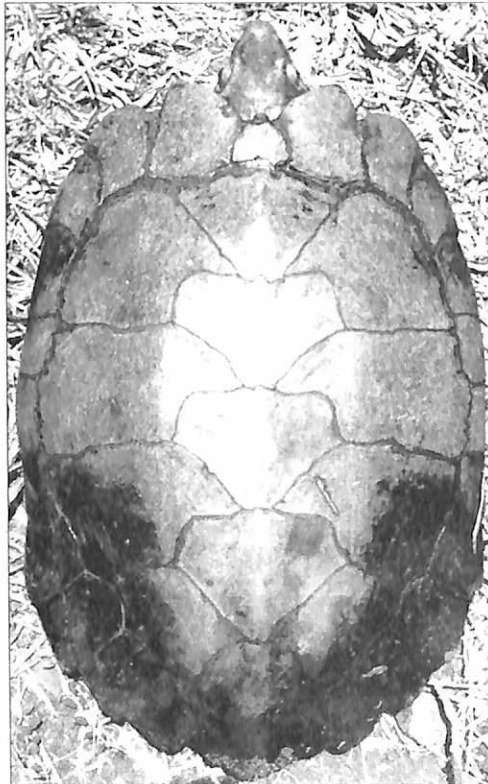


Figure 2a. *Heosemys leytensis* (Taylor 1920)

restaurant owner, *H. leytensis* was purchased from farmers in Aborlan (60 km south of Puerto Princesa City, Palawan) and in Taytay (220km north of PPC), who are known as local dealers in their respective places. The restaurant owner stated that she bought them for PhP 70.00-100.00 per individual. The owner insisted not to sell turtles but admitted that she sometimes give turtles away as pets for children. It was learned by the authors, however, of an incident where specimens were actually sold (Diesmos pers. comm. 2002). The employees of the restaurant further informed that several individuals were shipped to Cebu in October 2003 to be held in a new branch of the restaurant on Mactan Island, Cebu. We positively know that a new branch of the restaurant was opened in Cebu but as of now we do not know whether turtles were really shipped from Palawan to Cebu.

The occurrence of *H. leytensis* in Aborlan and Taytay was recently confirmed by Diesmos *et al.* (2004), who found captive animals in markets of the said localities as well as in Brooke's Point and Rizal. In the wild the species has been observed on Dumaran Island in the northeastern part of Palawan (Diesmos *et al.* 2004) and in San Vicente in the northwest of Palawan (Widmann *et al.* 2004).

These new findings indicate that the species is not as rare as previously thought but rather poorly studied as noted already by Ernst and Barbour (1989). According to the Philippine Red Data Book *H. leytensis* is one of the least known species of freshwater turtles of the world (WCSP 1997), a statement that remains true until today. The local trade of the species and the fact that it is highly valued by hobbyists (CITES 2002a) pose a serious threat on the species.

Twenty-four *C. amboinensis* were found in captivity in Puerto Princesa (23 in the restaurant, one in the house) together with *H. leytensis* and *C. dentata*. The animals were collected in Aborlan where they are still common according to the restaurant owner. She bought them from a farmer for PhP 50-60 per individual.

C. amboinensis is also common in Irawan, Puerto Princesa City according to a



Figure 2b. *Cuora amboinensis* (Daudin 1802)

farmer who sporadically collects this species and *C. dentata* for personal consumption. The same respondent claimed to have collected 1-2 sacks of these turtles about four years ago upon request of a middleman from Manila who bought them for PhP 50.00 per individual. According to the farmer, the middleman claimed that the turtles were for export; the destination and the means of transportation though are not known.

According to the interviewees in Brooke's Point, *C. amboinensis* is frequently seen and collected from swamps, marshes, ponds and especially ricefields in the area. The species is held as pet, eaten, used as medication for asthma, or placed in the food container of a pig since it is supposed to keep the pig healthy. The people that were interviewed said that they do not usually collect turtles with the purpose of selling them but would be very willing to collect turtles upon request if compensation was offered.

The aforementioned interviews as well as own observations (Schoppe pers. obs. 2003, 2004) in central (Puerto Princesa City and Roxas), southern (Aborlan and Narra) and northern Palawan (Malampaya Sound, San Vicente) have shown that *C. amboinensis* is still common in Palawan. Populations are however decreasing in densely settled areas due to subsistence collection and demand as pets (Widmann 1998). The conservation status of the species in the Philippines remains data deficient (Rhodin 2003).

In other countries *C. amboinensis* is one of the most expensive species in trade (van Dijk *et al.* 2000). It is in high demand for its medicinal uses (Shi and Parham 2000). It is one of the longest known species in the European pet market, which it entered in the seventies from Thailand and Borneo and in the eighties from Indonesia and the Philippines (Fritz and Obst 1998). Rummler and Fritz (1991) noted that rice-farming practices in the countries of its origin have enhanced habitats and population density.

C. dentata is sporadically collected for personal consumption and as pets, according to a farmer in Irawan. None of the other interviewees provided information on this species. Twenty-six individuals were however encountered in captivity in Puerto Princesa City (6 in the restaurant, 20 in the residence of the owner). The animals were allegedly bought for PhP 50.00–60.00 per individual from farmers in Aborlan and Taytay. *C. dentata* is apparently still relatively common in clean streams on Palawan Island (Schoppe pers. obs. 2003). As with *C. amboinensis*, Widmann (1998) also noted that the species is collected for local consumption and as a pet. It appears from the findings of our study that among the four species encountered, *C. dentata* is in the least demand. It may be that the major threat to this species is habitat destruction.



Figure 3a. *Cyclemys dentata* (Gray 1831)

This softshell turtle is commonly found in forest streams and rivers in Rio Tuba, Bataraza according to respondents from Rio Tuba, who stated that they regularly and easily collect at

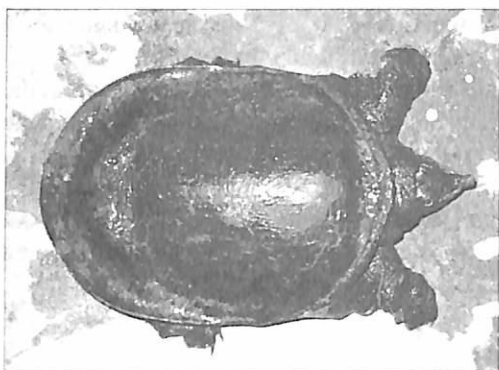


Figure 3b. *Dogania subplana* (Geoffroy 1809)

least seven to ten individuals per day. The best time for collection are nights during the dry season. *D. subplana* is usually collected for local consumption, medicinal purposes, as a pet or sold for consumption to residents from nearby places. The price for one individual ranges from PhP 20.00 to PhP 50.00 depending on the size or about PhP 50.00/kg. The biggest individual so far seen by the residents weighted approximately 2.5 kg. According to the respondents from Rio Tuba, consumption is local and they are not aware of international trade. This suggests that potential threats of this species in Bataraza are limited to habitat destruction through nickel mining activities and collection for local consumption. Levels of poaching and hunting are high in Bataraza, and Rio Tuba particularly was identified as a local center for illegal trade of wildlife (Widmann and Diaz 2003).

Recent information through a resident of Rizal, a neighboring municipality of Bataraza, revealed that *D. subplana* is subject to international trade as well. In Rizal, Japanese traders buy specimens for up to PhP 1000.00 per individual. Considering that among the Asian softshell species *D. subplana* is supposed to be the least favored species for the food trade (IUCN/SSC and ATWG 2000) this is a high price paid to local collectors.

According to the interviewees and based on previous surveys in Palawan (Schoppe pers. obs. 2003) *D. subplana* appears to be restricted to or at least be more common in the southern parts of Palawan Island. Such limited distribution might pose an additional threat to the species.

INTERVIEWS WITH ENVIRONMENTAL ORGANIZATIONS/OBSERVATIONS IN PET SHOPS

None of the personnel of environmental departments and organizations in Puerto Princesa City [Provincial Office of the Department of Environment and Natural Resources (PENRO), the Palawan Council for Sustainable Development Staff (PCSDS) and Conservation International (CI)] interviewed was aware of a freshwater turtle trade in Palawan, although PCSDS and CI were conducting a survey on *H. leytensis* in Taytay, Palawan.

None of the three pet shops in Puerto Princesa City kept native freshwater turtles for sale.

CONSERVATION ISSUES

As already noted by CITES (2002a) and IUCN/SSC and ATWG (2000), *H. leytensis* is especially affected by collection for subsistence due to its large size, and subsistence use of freshwater turtles has a long history especially among ethnic groups in Palawan (Schoppe pers. obs. 2003). Its rediscovery after over 80 years, the mystery of its geographic distribution, the apparent rarity and the lack of knowledge on its biology and ecology has made it in only two years one of the highest priced species on the international pet market. It is now available on Asian, European and possibly also American pet markets. In Germany it currently gains EURO 2,000.00 per individual (Richard Gemel, Natural History Museum, Vienna as cited by Uwe Fritz, Staatliches Museum fuer Tierkunde, Dresden, Germany, pers. com. 2004).

Dogania subplana appears to be restricted to the south of Palawan where it faces habitat destruction, local consumption and international trade. Softshell turtles are generally the most preferred food species (van Dijk *et al.* 2000), but there is still insufficient information to validate this statement for Palawan or the Philippines in general. More information is needed to determine the

extent of trade in this species, especially the international trade dynamics.

Cuora amboinensis is internationally of high demand for consumption, medicinal purposes and as a pet. The adaptation of the species to human agricultural practices, once of advantage to the species, might now lead to faster and more effective exploitation, making it the most readily accessible species for collection. At the same time its natural habitat such as swamps and marshes are rare on Palawan and elsewhere in the country and most have been converted to fishponds or drained.

Cyclemys dentata is likely the species in least demand and its major threat is probably habitat destruction. The species depends on small clean lowland forest streams, a habitat that is threatened by deforestation and pollution.

All of Palawan's freshwater turtles are IUCN listed and therewith receive special protection under the Philippine Wildlife Act, a law that regulates the collection and possession of all wildlife species and their by-products. In addition, the trade of *H. leytensis*, *C. amboinensis* and *P. cantorii* is regulated under Appendix II of CITES (2003). The uplisting of *H. leytensis* to Appendix I and the inclusion of *C. dentata* in Appendix II are currently proposed (Rhodin 2003). However, these protection measures are insufficient due to the unawareness of threats and laws or the ignorance of the latter in combination with the appealing reward of easily and quickly earned money through collection and sale of turtles. As long as environmental authorities and government agencies do not strictly enforce existing wildlife protection laws, illegal possession and trade will continue and probably increase. In combination with the other threats such as habitat destruction, especially of swamps, marshes and small streams, Palawan's freshwater turtles will consequently face population reduction. This is especially true for the Palawan endemic *H. leytensis*.

The available information on the status and the trade of freshwater turtles in Palawan is still insufficient and certainly warrants

further studies but it also clearly indicates a serious threat, which had not been identified nor addressed before. We strongly support the uplisting of *H. leytensis* to Appendix I, and the inclusion of the *C. dentata* species complex in Appendix II. We further recommend the inclusion of *D. subplana* under CITES. An intensive distribution survey of the endangered *P. cantorii* is further recommended.

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REFERENCES

- Asian Turtle Trade Working Group. 2000. Conclusions and recommendations from the workshop on conservation and trade of freshwater turtles and tortoises in Asia. In van Dijk, P.P., B.I Stuart and A.G.J. Rhodin (eds.) Asian Turtle Trade: Proceeding of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia. Chelonian Research Monographs, 2: 148-155.
- Behler, J. 2000. Letter from the IUCN tortoise and freshwater specialist group. Turtle and Tortoise Newsletter, 1: 4-5.

- CITES 2003. Appendices I, II and III valid from 28 May 2003. Convention on international trade in endangered species of wild fauna and flora. www.cites.org.
- CITES 2002a. Inclusion of all species of the genus *Heosemys* in Appendix II of CITES. Consideration of Proposals for Amendment of Appendices I and II. Conference of the Parties, Proposal 12.22 2002. Twelfth Meeting of the Conference of the Parties, Santiago, Chile, November 3-15, 2002, 48 pp.
- CITES 2002b. Inclusion of the giant softshell turtles *Pelochelys* spp. in Appendix II. Proponent: China and United States of America. Conference of the Parties, Proposal 12.32 2002. Twelfth Meeting of the Conference of the Parties, Santiago, Chile, November 3-15, 2002, 5 pp.
- Compton, J. 2000. An overview of Asian turtle trade. In van Dijk, P.P., B.I. Stuart, and A.G.J. Rhodin (eds.) Asian Turtle Trade: Proceeding of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia. Chelonian Research Monographs, 2, 24, 29.
- Diesmos, A.C. and N.A. Palomar 2004. The status of biological diversity in the Palawan corridor. P. 1-7. In Anda, R.D. and J.G. Tabangay-Baldera (eds.). Surublien: Strategies to Conserve Palawan's Biodiversity. Provincial Government of Palawan, Palawan Council for Sustainable Development Staff, Department of Environment and Natural Resources – MIMAROPA Region IV, Palawan NGO Network Inc., and Conservation International Philippines, Puerto Princesa City, Philippines.
- Diesmos, A.C., G.V.A. Gee, M.L. Diesmos, R.M. Brown, P.J. Widmann and J.C. Dimalibot 2004. Rediscovery of the Philippine Forest Turtle, *Heosemys leytensis* (Chelonia; Bataguridae), from Palawan Island, Philippines. Asiatic Herpetological Research, 10: 22-27.
- Ernst, C.H. and R.W. Barbour 1989. Turtles of the World. Smithsonian Institution Press, Washington, D.C., 313 pp.
- Fritz, U. and F.J. Obst 1998. Neue Schildkroeten aus Suedostasien. Teil I. Platysternidae and Bataguridae (Cuora). Sauria, Berlin, 20(4): 9-22.
- IUCN 2003. 2003 IUCN Red List of Threatened species. www.redlist.org. Downloaded on 05 May 2004.
- IUCN/SSC and ATWGW (IUCN/SSC Tortoise and Freshwater Turtle Specialist Group and Asian Turtle Trade Working Group) 2000. Recommended changes to 1996 IUCN Red List status of Asian turtle species. In van Dijk, P.P., B.J. Stuart, and A.G.J. Rhodin (eds). Asian turtle trade: proceedings of a workshop on conservation and trade of freshwater turtles and tortoises in Asia. Chelonian Research Monographs, 2: 156-164.
- Mugenda, O.M. and A.G. Mugenda 1999. Research Methods. Quantitative and Qualitative Approaches. Acts Press, Kenya, 456 pp.
- Rhodin, A.G.J. 2000. Publishers editorial: turtle survival crisis. Turtle and Tortoises Newsletter, 1: 2-3.
- Rhodin, A.G.J. (compiler) 2003. Conservation and trade of Asian freshwater turtles and tortoises: updated review of status and threats with recommendations for CITES listings. AC19 Doc. 15.1.
- Rummler, H.-J. and U. Fritz 1991. Geographische Variabilitaet der Amboina-Schamierschildkroete *Cuora amboinensis* (Daudin, 1802), mit Beschreibung einer neuen Unterart, *C. a. kamaroma* subsp. nov.. Salamandra, 27(1): 17-45.
- Shi, H. and J.F. Parham 2000. Preliminary observation of a large turtle farm in Hainan Province, Peoples Republic of China. Turtles and Tortoises Newsletter, 3: 4-6.
- TRAFFIC 2001. An overview of the trade in live South-east Asian freshwater turtles. An information paper for the 17th Meeting of the CITES Animals Committee, Hanoi, Viet Nam, 30 July to 3 August 2001. AC17 Inf. 7.

- Van Dijk, P.P. 2000. The status of turtles in Asia. In van Dijk, P.P., B.J. Stuart, and A.G.J. Rhodin (eds.). Asian turtle trade: proceedings of a workshop on conservation and trade of freshwater turtles and tortoises in Asia. Chelonian Research Monographs, 2: 15-18.
- Van Dijk P., B. Stuart and A. Rhodin 2000. Asian turtle trade. Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia. Executive summary. Chelonian Research Monographs, 2: 13-14.
- WCSP (Wildlife Conservation Society of the Philippines) 1997. Philippine Red Data Book. Bookmark, Makati City, Philippines, 262 pp.
- Widmann, P. 1998. A Guide to the Ecosystems of Palawan, Philippines. Times editions, Singapore, 120 pp.
- Widmann P. and Diaz S. 2003. Rapid bird survey in mangroves of northern Bataraza, Palawan, Philippines. P. 35-50. In Conservation International Palawan (ed.) Assessment of mangroves and associated fauna in Bataraza and Balabac, Palawan. A Final Report. Conservation International, Puerto Princesa City, Palawan, Philippines, 121 pp.
- Widmann, P. , K. Lachenmaier, I.L. Widmann, S. Schoppe, R.M. Dumalag, J.D. Matillano, D.F. Villafuerte, S.H. Diaz and M. Cervancia, 2004. Wirbeltiergemeinschaften in Rotsteisskakadu-Habitaten in Nord-Palawan. ZGAP Mitteilungen 20(4):3-7.