

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

Amendments to Appendices I and II of CITES

Thirteenth Meeting of the Conference of the Parties
Bangkok (Thailand), 2 – 14 October 2004

A. PROPOSAL

Inclusion of the family *Carettochelyidae*, containing the genus *Carettochelys* with the currently known species *Carettochelys insculpta*, in Appendix II in accordance with Article II 2(a) of the Convention, and to satisfy Criterion B) i) in Annex 2a of Resolution Conf. 9.24.

B. PROPONENT

The United States of America in accordance with the consensus recommendations of the CITES-sponsored Technical Workshop on Conservation of and Trade in Freshwater Turtles and Tortoises in Asia, held in Kunming, China in March 2002, and the Animals Committee Working Group on Tortoises and Freshwater Turtles.

C. SUPPORTING STATEMENT

1.1 Taxonomy

- 1.1 Class: Reptilia
- 1.2 Order: Testudines (Chelonia)
- 1.3 Family: Carettochelyidae
- 1.4 Genus: *Carettochelys* Ramsay, 1886
Species: *Carettochelys insculpta* Ramsay, 1886
Subspecies: *Carettochelys insculpta insculpta* Ramsay, 1886
Carettochelys insculpta canni Wells, 2002.
- 1.5 Scientific synonyms: None
- 1.6 Common names: English: pig-nosed turtle, Fly River turtle, New Guinea plateless turtle, pitted-shell turtle
French: carettochélyde d'Australasie
Spanish:
German: Neuguinea-Weichschildkröte
Aboriginal (Kakadu): warradjan
Aboriginal (Daly River): yirrin
Bahasa Indonesia: kura-kura irian, labi-labi moncong babi
- 1.7 Code Numbers:

2. Biological Parameters

2.1 Distribution: Australia, Indonesia, Papua New Guinea

Australia: *Carettochelys* has been recorded from the Victoria, Daly, and Alligator river systems of the Northern Territory (Georges and Rose 1993, Cann 1998). Anecdotal but presently unconfirmed reports exist from several other rivers in the Northern Territory and from the Wenlock River of Queensland (Georges and Rose 1993).

Indonesia: The species inhabits the Seketwa, Heron and other rivers in southern West Papua; an old record from Lake Jamur is probably in error (Georges and Rose 1993).

Papua New Guinea: *Carettochelys* has been recorded from the Strickland, Fly, Morehead, Aramia, Omati, Binaturi, Purari, Kikori and perhaps the Vailala river systems of southern Papua New Guinea (Georges and Rose 1993).

2.2 Habitat availability

Carettochelys inhabits rivers, including estuarine regions, and grassy lagoons, swamps, lakes and waterholes of the southern lowlands of New Guinea (Rose *et al.* 1992). In the Kikori river of PNG, adults occur mainly in the mangrove delta regions, whereas juveniles are normally found in small creeks farther inland (Rose *et al.* 1982). In Australia, the species is known to inhabit rivers, lowland and upland billabongs, and plunge pools during the dry season; details of the wet-season habitat remain unknown (Georges and Rose 1993, Georges and Wombey 1993). Much of the rivers and delta regions inhabited by *Carettochelys* remain ecologically intact and sufficient feeding habitat remains available in each of the three Range States.

Carettochelys nests on sand banks adjoining water in middle and lower reaches of rivers, on sandy shores of river delta islands, and on coastal beaches. Nesting occurs preferentially in beaches of clean fine sand adjacent to water, but on occasion the species may also nest in mud, loam or coarse gravelly sand (Rose *et al.* 1982, WWF Sahul Bioregion 1999).

2.3 Population status

See Population Trends below.

2.4 Population trends

Australia: Georges and Kennett (1989) found *Carettochelys* to be widespread between the tidal reaches and the headwaters of the South Alligator River, and that high densities of 33.8 +/- 11.2 turtles per hectare may be present in the upper reaches during the dry season, when animals are concentrated in remaining water bodies.

Indonesia: Samedi and Iskandar (2000) considered *Carettochelys* as 'Abundant locally' yet Vulnerable in the Indonesian part of its range. Cann (1998) indicated that in 1972 the species was relatively common in the Eilanden River of the Asmat region. A planned population size survey in the Asmat area in September 1999 could not be implemented due to insufficient equipment and available time (WWF Sahul Bioregion 1999).

Papua New Guinea: Populations of *Carettochelys* have historically been abundant, but appear to have suffered declines over the past few decades (Rose *et al.* 1982, Georges and Rose 1993, Rhodin and Genorupa 2000). Populations of *Carettochelys* in the Kikori River District, Gulf Province, were reported as severely depleted from 1973 to 1993 (Georges and Rose 1993), whereas populations in the Western Province appeared to be in decline (Rose *et al.*

1982).

2.5 Geographic trends

Carettochelys is believed to have a relatively stable area of geographic distribution. Speculation that the species might be a recent invader of northern Australia from New Guinea are disproved by Australian Aboriginal rock paintings up to 7,000 years old depicting the species (Chaloupka, in Georges and Rose 1993), as well as the differentiation between the Australian and New Guinea populations being significant enough to warrant subspecific distinction. Animals of Australian populations may on average be smaller (Cann 1998).

2.6 Role of the species in its ecosystem

Carettochelys is omnivorous. In the dry season, it feeds predominantly on fruits, seeds and leaves of a wide variety of riverside vegetation, including *Ficus racemosa*, *Syzygium forte* and *Pandanus aquaticus*, and mangroves (*Sonneratia* species) in both Australia and New Guinea. When available, aquatic plants such as *Vallisneria* sp., *Najas tenuifolia*, and algae are also eaten. Molluscs, crustaceans, fishes, bats and other mammals also feature in the diet, the latter presumably indicating scavenging. The wide range of food eaten provides great scope for opportunism, and the diet varies greatly between localities, according to the foods available (Georges and Wombey 1993, Georges *et al.* 2000). The significance of *Carettochelys* feeding on any of these species is not known. Eggs of the species are predated on by man and monitor lizards (*Varanus panoptes*, *V. mertensi* in Australia; *V. indicus*, *V. salvator*, *V. prasinus* in New Guinea). (Rose *et al.* 1982, Georges and Wombey 1993, Georges *et al.* 2000). In New Guinea, wild pigs (*Sus scrofa*) also locate and feed on eggs (Maturbongs 1999).

2.7 Threats

The main threat at present appears to come from human harvest of eggs and adults for consumption, with a proportion of the collected eggs being incubated and the hatchlings traded for the international pet trade. Subsistence use of the species by local communities has a long history, but apparently used to occur only at moderate levels. In recent decades, harvest pressures have escalated greatly, to levels that are widely perceived to endanger the species over much of its range, particularly in New Guinea (Rose *et al.* 1982, Rhodin and Genorupa 2000).

Rose *et al.* (1982) noted that 'the stereotyped mass nesting habits render *Carettochelys* (like *Batagur*, most *Podocnemis*, and most sea turtles) extremely susceptible to excessive predation, particularly by humans.' It is noteworthy that *Batagur* and all marine turtles were included in Appendix I, and all *Podocnemis* in Appendix II, between 1975 and 1981. Georges and Wombey (1993) specifically cited trampling of nesting beaches by feral water buffalo (*Bubalis bubalis*) as a problem for populations inhabiting the Alligator River region of Kakadu National Park, Australia. Water buffalo are also implicated in habitat damage such as degradation and destruction of riverbank vegetation on which *Carettochelys* feeds, with negative long-term impacts.

Georges and Wombey (1993) and Georges and Rose (1993) noted that most *Carettochelys* habitat in the Daly River is largely unprotected and land-use control is largely in private hands. Thus, agricultural and pastoral activities can potentially have severe impacts on erosion, effluent and resulting water quality as well as degradation of riverside vegetation. Georges and Rose (1993) also referred to the possibility of mining by chemical extraction in Kakadu National Park, with the attendant risk of water pollution impacting the species.

3. Utilization and Trade

3.1 National utilization

Australia: In Australia, where Aboriginal people regularly eat turtles, *Carettochelys* is favoured by some for its size and flavor (Georges and Wombey 1993, Georges *et al.* 2000). Georges and Kennett (1989) reported an annual harvest of 19 turtles by two Aboriginal families at Nourlangie Camp. There are no reports of harvesting of the eggs of *Carettochelys* in Australia (Georges and Wombey, 1993).

Indonesia: Cann (1978, 1998) noted that locals living along the Eilanden River (Irian Jaya [West Papua]) relished the species' eggs as food; all nests examined on riverine sand banks in 1972 had been disturbed, and baskets filled with about 200 eggs each were observed. Cann (1998) also described that, before about 1970, river travel and associated egg harvest were extremely limited due to the insecure conditions in the region. Samedi and Iskandar (2000, presumably based on Maturbongs, 1999) noted that a field study undertaken at the Vriendschap River in Merauke Regency, Irian Jaya, in August–September 1998 recorded 84,000 eggs collected by 7 collectors. In all of 1998, half a million eggs were collected from the banks of the Vriendschap River. In the entire Merauke Regency, collection of *Carettochelys* eggs has been estimated recently to amount to 1.5–2 million eggs annually (Samedi and Iskandar 2000). Many of these eggs are traded and consumed locally, but a proportion is incubated in sand-filled buckets and the hatchlings subsequently sold for the pet trade.

Maturbongs (1999) noted that local peoples along the Vriendschap River usually only captured adult turtles for consumption. According to his survey and interview results, egg collection has expanded massively in recent years, since 1997, due to the influx of egg harvesters from outside West Papua, originating from Toraja and Ujung Pandang. Maturbongs (1999) specifically stated that local communities barely obtain benefits from egg harvesting. External collectors organize local villagers to carry out the labor of harvesting eggs, for which they are paid 10,000 Rp (USD 1.12) per day, but from which 6,000 Rp is deducted for two meals daily, 1,000 Rp for coffee and 2,000 Rp for cigarettes, leaving a net income of 1,000 Rp (USD 0.11) per day as reward for over-harvesting the community's natural resources.

Papua New Guinea: The species is widely and heavily exploited for its meat and eggs and represents an important component of the subsistence economies of local peoples (Rose *et al.* 1982, Rhodin and Genorupa 2000). Over a 5-month period in 1981–1982, over 5,000 eggs and at least 30 adults were harvested and sold in the Kikori market; most captured adults were consumed for subsistence and were not marketed (Rose *et al.* 1982). In the next year, over 20,000 eggs were collected and consumed in Kikori and three nearby villages (Georges and Rose 1993). Rose (in Rose *et al.* 1982) noted that the advent of outboard boat motors and the cessation of clan warfare led to the move of communities towards riverside settlements and led to a concomitant increase in exploitation pressure on riverine resources, including *Carettochelys*. Shells of the species are apparently not used for the manufacture of ceremonial or tourist masks, a tradition and craft industry centred upon the Sepik River basin, where *Carettochelys* does not occur (Rhodin *et al.* 1993).

3.2 Legal international trade

Neither Australia nor Papua New Guinea allow export or domestic trade of the species. Export from Indonesia is only permitted in the case of captive-bred animals, which is interpreted as

including animals hatched in captivity from wild-collected eggs incubated under semi-controlled, captive conditions (Samedi and Iskandar 2000). No export quota was set for the species by the CITES Management Authority in 1998 (Samedi and Iskandar 2000).

3.3 Illegal trade

Indonesia: As noted in 3.1, above, a substantial proportion of eggs harvested in West Papua is incubated in captivity and the hatchlings are exported into the pet trade. Being hatched from wild-collected eggs, this trade is in a grey zone of legal/illegal trade under Indonesian legislation. However, in the absence of clear documentation of sustainable management practices, this trade is generally considered illegal and such traded animals are confiscated. Samedi and Iskandar (2000) and Samedi *et al.* (2002) noted illegal trade of *Carettochelys* from Merauke and Timika, West Papua, to Makasar (Ujung Pandang)(Sulawesi), Jakarta and Surabaya (Java) and Denpasar (Bali) and exported onwards to China and Singapore. In 1999, local prices were about 10,000–15,000 Rp (USD 1.12–1.69) per hatchling in Senggo and Atsy, where eggs were incubated, about 30,000 Rp (USD 3.37) per hatchling after transport to Merauke, and 60,000–70,000 Rp (USD 6.74–7.87) each in Surabaya (Maturbongs, 1999). In February 2004, three separate shipments of *Carettochelys* juveniles were intercepted and confiscated at Jakarta's Soekarno-Hatta International Airport. The shipments comprised 100, 390, and 309 *Carettochelys*, respectively, and were all destined for Japan (Fidrus 2004).

Papua New Guinea: Rhodin & Genorupa (2000) reported illegal trade of live animals from the southern border region to traders from Merauke, West Papua, where these animals join animals of Indonesian origin to enter the global pet trade.

Peoples Republic of China and Hong Kong S.A.R.: The Endangered Species Import and Export Management Office of the People's Republic of China's *Identification Manual for common Turtles and Tortoises* (2002) lists *Carettochelys* as 'rarely seen in trade'. A survey of 5 pet shops in Hong Kong SAR and one pet market in Guangzhou, China, carried out between 30 October 2000 and 13 October 2001 observed 354 individuals of *Carettochelys* offered for sale as pets. The species was not encountered during surveys of food markets during the same period. The shops and markets were surveyed twice during every winter month and once during each summer month; thus, the number observed is a minimum number, not an approximation of total annual volume (Ades 2002).

Malaysia: Up to 12 post-hatchling *Carettochelys* were regularly observed during incidental visits to pet and aquarium shops in Petaling Jaya and Kuala Lumpur during 2000–2001 (van Dijk, in litt. to U.S. Fish and Wildlife Service).

Thailand: In 1999, market surveys of Chatuchak market in Bangkok showed that most pet reptile traders and even several aquarium fish traders included post-hatchlings of *Carettochelys* among the animals on offer, in substantial numbers of 3–15 displayed animals per vendor. Posthatchling animals were priced between 650 and 950 Baht (USD 16.25–25.25) each. By April 2000, larger numbers of post-hatchlings were offered and the price had dropped to 450 Baht (USD 11.00) per animal. (van Dijk, in litt. to U.S. Fish and Wildlife Service).

3.4 Actual or potential trade impacts

The general consensus is that recently intensified egg collection, to a large part driven by the aim to supply hatchlings to the international pet trade, is presenting a clear threat to the survival of the species in West Papua (Maturbongs 1999) and is also affecting the exploitation and conservation status of the species in Papua New Guinea (Rhodin and Genorupa, 2000).

Inclusion of *Carettochelys* in CITES Appendix II is primarily intended to facilitate and reinforce existing export restrictions in the three Range States, by providing an international dimension to the species' protection. This will greatly increase opportunities to reduce illegal trade in the species by imposing trade control measures in the importing countries. At present, only the Lacey Act of the United States of America provides comparable complementary protection. Inclusion of the species in CITES Appendix II should not compromise the subsistence utilization of the species by native communities throughout its range. This could facilitate limited, sustainable harvest and trade with associated socio-economic benefits by and for these communities.

3.5 Captive breeding or artificial propagation for commercial purposes (outside country of origin)

Indonesian legislation allows for incubation in captivity of wild-collected eggs (ranching) (Samedi and Iskandar 2000). WWF Sahul Bioregion conducted a study of captive incubation to identify the possibilities for future captive breeding as a means to reduce harvesting pressure on wild populations, but only provisional results were available (Tjaturadi, 1999).

4. Conservation and Management

4.1 Legal status

4.1.1 National

Australia: *Carettochelys* benefits from State and Federal legislation prohibiting the exploitation of native fauna by all but Aboriginal peoples. It is protected in Kakadu National Park by the National Parks and Wildlife Conservation Act of 1975, and elsewhere in the Northern Territory by the Territory Parks and Wildlife Conservation Act of 1982. Export of *Carettochelys* is prohibited under the Wildlife Protection (Regulation of Exports and Imports) Act of 1982 (Georges and Rose 1993). However, the legislative reach does not extend to prohibiting habitat destruction affecting the species (Georges and Wombey 1993).

Indonesia: *Carettochelys insculpta* is given national protection status under Government Regulation Act No. 7 and 8 of 1999, which is in application of Law No.5/1990 concerning the Conservation of Biological Natural Resources and their Ecosystems incorporating Decrees 327/1978 of the Ministry of Agriculture (Noerdjito and Maryanto 2001). No utilization in any form is allowed for species listed in this protection status, except with special permission from the Minister and under the consent of the Scientific Authority for special circumstances, such as research and captive breeding, and no capture or export quotas are set (Samedi and Iskandar 2000).

Papua New Guinea: Trade in turtles is strictly regulated by law as proscribed by the Fauna (Protection and Control) Act (Parker, 1981). This Act was in the process of being amended in 1999. All turtle exports require permits to be issued by the Conservator of Fauna (currently the Department of Environment and Conservation). *Carettochelys insculpta* is listed as a Restricted Species, with narrow guidelines for any legal export. This limits the export to only a few animals for legitimate scientific purposes (Rhodin and Genorupa 2000).

4.1.2 International

Carettochelys insculpta is not specifically covered by bilateral or inter-governmental legislation. Under Notice of Strengthening the Trade Management on Turtles and Tortoises, issued on 17 June 2001, the People's Republic of China suspended all commercial imports of all turtles from Indonesia, including *Carettochelys insculpta*.

4.2 Species management

4.2.1 Population monitoring

There are no ongoing population monitoring programs for the species in either West Papua or Papua New Guinea.

4.2.2 Habitat conservation

In Australia, Kakadu National Park affords considerable protection to populations of *Carettochelys* in the Alligator River region (Georges *et al.* 2000). Negative impacts of feral water buffalo on *Carettochelys* nesting beaches and riverside vegetation in the park are ameliorated by an intensive buffalo control program (Georges and Wombey 1993, Georges *et al.* 2000).

In West Papua, *Carettochelys* has been recorded to inhabit Wasur National Park (Samedi and Iskandar 2000) and the buffer zone of the Lorentz National Park (Tjaturadi 1999).

4.2.3 Management measures

Rose (1982) asserted that 'the potential exists for utilizing *C. insculpta* and under sustainable yield management to provide a valuable protein source for local inhabitants.' Such management could be extended to include production of a sustainable number of juveniles for the international pet trade, with concomitant financial returns to local communities. This would, however, require changes in the regulations governing the trade and export of protected species in each of the three Range States.

4.3 Control measures

4.3.1 International trade

Once exported from their respective Range State, *Carettochelys* specimens are subject to national regulations pertaining to species trade, customs, and quarantine measures when entering the importing country. In the United States, the protected status in the Range States makes the species subject to the provisions of the Lacey Act. In most countries, regulations require compliance with the International Air Transport Association (IATA) regulations concerning the shipping of live animals, as a condition for acceptance or transit passage through airports (IATA Live Animals Regulations, Chapters 1 and 2). In addition, most airlines require shipping of live turtles to comply with the IATA regulations (IATA Live Animals Regulations, Appendix A).

4.3.2 Domestic measures

Subsistence utilization is reserved to local communities in Australia, and few if any animals are traded. Enforcement of restrictions on harvest and local trade in Indonesia and Papua New Guinea present major logistic problems.

5. Information on Similar Species

The species is highly unlikely to be confused with any other turtle species. Its unique morphology, particularly the absence of keratinous scutes on the shell, and the unique swimming motion, set it apart from nearly all other turtles. In possible cases of confusion with other turtles with skin-covered shells, *Carettochelys* has two claws on each front limb, Trionychid softshells have three claws, and the leatherback turtle (*Dermochelys coriacea*) has no claws at all.

6. Other Comments

Inclusion of *Carettochelys insculpta* in CITES Appendix II has been advocated by the following groups:

The Asian Turtle Trade Working Group (2000), based on the findings of the Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia, held in Phnom Penh, Cambodia, 1–4 December 1999, recommended inclusion of all Asian tortoise and freshwater turtle species in Appendix II, including *Carettochelys insculpta*.

The participants in the Working Group on Conservation Management and CITES Implementation at the CITES Technical Workshop on Conservation of and Trade in Freshwater Turtles and Tortoises, held at Kunming, P.R. China, 25–28 March 2002, generally agreed that all remaining non-CITES-listed species of Asian turtles should be listed in the Appendices of CITES (CITES AC18 Inf. 12, page 14).

In its presentation at the Kunming workshop, Indonesia specifically listed *Carettochelys insculpta* as a species to be discussed for listing in the CITES Appendices (Samedi *et al.* 2002). The Chelonian Research Foundation, in an Annex to document AC19 Doc 15.1 prepared by the United States of America (USA 2003) and based on the results of the Kunming workshop, proposed inclusion of *Carettochelys insculpta* in Appendix II as a priority.

7. Additional Remarks

None.

8. References

Ades, Gary W. J. 2002. *Turtle Trade Monitoring in South China & Summary of Turtle Rescue Operation in Hong Kong*. Report and Presentation presented at the Technical workshop on conservation of and trade in freshwater turtles and tortoises in Asia, Kunming, Yunnan Province (People's Republic of China), 25–28 March 2002.

Asian Turtle Trade Working Group. 2000. Conclusions and recommendations [of Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia, Phnom Penh, Cambodia, 1-4 December 1999]. *Chelonian Research Monographs*, 2:148–155.

Cann, John. 1978. *Tortoises of Australia*. Angus & Robertson, Australia. 79 pp + 92 pls.

- Cann, John. 1998. Australian Freshwater Turtles. John Cann & Beaumont Publishing Pte. Ltd., Singapore. 292 pp.
- Endangered Species Import and Export Management Office of the People's Republic of China. 2002. *Identification Manual for Common Turtles and Tortoises*. China Forestry Publishing House, Beijing, China. 174 pp.
- Fidrus, Multa. 2004. Officers save protected turtles. *The Jakarta Post*, 02 March 2004, <http://www.thejakartapost.com/yesterdaydetail.asp?fileid=20040302.A03>.
- Georges, Arthur, Sean Doody, Jeanne Young and John Cann. 2000. The Australian Pig-Nosed Turtle (*Carettochelys insculpta*). Privately printed, Georges & Cann. 38 pp.
- Georges, Arthur, and Rod Kennett. 1989. Dry season distribution and ecology of *Carettochelys insculpta* (Chelonia: carettochelyidae) in Kakadu National park, northern Australia. Australian Wildlife Research, Vol. 16: 323–335.
- Georges, Arthur, and M. Rose. 1993. Conservation biology of the pig-nosed turtle, *Carettochelys insculpta*. *Chelonian Conservation and Biology* 1(1): 3–12.
- Georges, Arthur, and John C. Wombey. 1993. Family Carettochelyidae. Chapter 22 in Fauna of Australia 2A—Amphibia and Reptilia (Glasby, Ross & Beesley, eds.). Australian Government Publishing Service. Available at <http://www.ea.gov.au/biodiversity/abrs/online-resources/abif/fauna/foa/2a-contents.html>.
- Iskandar, Djoko T. 2000. *Turtles & Crocodiles of Insular Southeast Asia & New Guinea*. Institute of Technology, Bandung, Indonesia. 191 pp.
- Maturbongs, Johannes Arthur. 1999. Trade Monitoring of Pig Nose Turtle (*Carettochelys insculpta*) from Vriendschap River, District of Suator, Merauke Regency, Irian Jaya. Report, WWF Sahul Bioregion, Jayapura. Pp. 21–27.
- Noerdjito, Mas, and Ibnu Maryanto (editors). 2001. *Jenis-jenis Hayati yang Dilindungi Perundang-undangan Indonesia*. LIPI & The Nature Conservancy, Cibinong, ID. 220 pp.
- Rhodin, Anders G.J., and Vagi R. Genorupa. 2000. Conservation Status of Freshwater Turtles in Papua New Guinea. *Chelonian Research Monographs*, 2:129–136.
- Rhodin, Anders G.J., Russell A. Mittermeier and Philip M. Hall. 1993. Distribution, Osteology and Natural History of the Asian Giant Softshell Turtle, *Pelochelys bibroni*, in Papua New Guinea. *Chelonian Conservation and Biology*, Vol. 1 (1): 19–30.
- Rose, M. R., F. Parker and A.G.J. Rhodin. 1982. New Guinea plateless turtle or pitted shell turtle (Fly River or pig-nosed turtle), *Carettochelys insculpta* Ramsay 1886. Pp. 243–246 in The IUCN Amphibia - Reptilia Red Data Book, Part 1. Testudines, Crocodylia, Rhynchocephalia (B. Groombridge, Ed.). International Union for Conservation of Nature and Natural Resources, Gland, Switzerland.
- Samedi, and Djoko T. Iskandar. 2000. Freshwater Turtle and Tortoise Conservation Utilization in Indonesia. *Chelonian Research Monographs*, 2:106–111.

- Samedi, Akhmad Rukyani, and Irvan. 2002. *Utilization and Trade in Freshwater Turtles and Tortoises in Indonesia*. Country Report and Presentation presented at the Technical workshop on conservation of and trade in freshwater turtles and tortoises in Asia, Kunming, Yunnan Province (People's Republic of China), 25–28 March 2002.
- Tjaturadi S. Si, Burhan. 1999. Progress of Pig Nose Turtle's egg (*Carettochelys insculpta*) hatching experiment, in field office of Sentani, WWF Sahul Bioregion, Irian Jaya. Report, WWF Sahul Bioregion, Jayapura. Pp 40-45.
- Wermuth, Heinz, and Robert Mertens. 1961. *Schildkröten, Krokodile, Brückenechsen*. Gustav Fischer Verlag, Jena. Reprinted in 1996 with an appendix (pages 425–506) by F. J. Obst. xxvi + 506 pp.
- WWF Sahul Bioregion. 1999. Population and Habitat Survey of Pig Nose Turtle along Vriendschap River, in District of Suator, Merauke Regency, Irian Jaya. Report, WWF Sahul Bioregion, Jayapura. Pp. 28–39.