

## CAYMAN TURTLE FARM

JEFF CANIN

*Flat 2, 18 Canfield Gardens, London, NW6 3JY*

The Cayman Turtle Farm (CTF) was originally established in Governor's Creek on Grand Cayman Island in 1964. The Farm's founders envisioned providing reliable supplies of inexpensive sea turtle products, such as turtle steaks, soup and jewellery. To this end, over 378,000 turtle eggs and nearly 100 adult turtles were brought into the Farm from the wild.

In 1975, however, Mariculture Ltd, the company running the Farm, went bankrupt. In 1976, a German couple and the Cayman Islands Government purchased the Farm and moved it to a series of land-based concrete and fibreglass tanks. Over the next three years, the Farm imported another 91,000 eggs and 117 adults. By August 1978, there were 63,000 sea turtles swimming in the tanks and exports (primarily to the United States) were expanding.

In meetings with IUCN in 1975, the Farm's Research Manager, Dr James Wood, stated that the Farm planned to be independent of wild populations of sea turtles, i.e. to be "self-sufficient", by 1980. This was meant to counter rising criticism that the Farm would have to depend upon wild sea turtles to meet its production goals.

At the time, the Farm's target of slaughtering 13,000 turtles each year depended exclusively upon hatchlings produced by the imported wild adult sea turtles or from the imported eggs. Their projection was that by 1980, they would have switched to the hatchlings produced by the "farm raised" turtles, i.e. eggs brought in from the wild, hatched and raised on the farm.

As more experience was gained, the projections were lowered. However, the Farm was to fall far short of these revised projections even, and by 1980, it was clear that the Farm was still depending upon production by the imported adult turtles for more than 97 percent of its slaughter needs.

### CTF AND CITES

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) regulates international trade in endangered and threatened species. All species of sea turtles are currently listed on Appendix I of the treaty. Appendix I is reserved for those species most in danger of extinction and, therefore, most threatened by international trade. Only Appendix I animals that have been "bred in captivity for commercial purposes" may enter international trade with the endorsement of CITES.

At the Second Meeting of the Conference of the Parties in Costa Rica, the exact meaning of "captive-bred" was determined by the Parties in a resolution known as "Conf. 2.12". This resolution limited trade in "captive-bred" specimens to those that had been born in captivity to parents that mated in captivity. Furthermore, the breeding programme had to be capable of reliably producing offspring of the F2 or second generation. This would ensure that a captive operation would be truly self-sufficient and not be dependent on continued additions from the wild. It is clear that the intention of the Parties was that the eggs collected in the wild and hatched and raised in captivity were part of the parental generation and not F1. When Conf. 2.12 was being drawn up, it was done very much with CTF in mind. The UK delegation did not register any protest at the time.

At the Fourth Meeting of the Parties, at the instigation of the UK, a draft resolution, Doc.4.45 Annex, entitled "Captive Breeding and Long Maturing Species", concerning farming of long lived animals, was considered by the Technical Experts Committee (TEC). John Goldsmith, head of the UK delegation and Chairman of TEC, strongly supported the resolution, arguing that until captive breeding is achieved, limited trade in these species should be allowed. The resolution was opposed by a number of countries, on the grounds that Conf. 2.12 had been adopted after much deliberation and careful consideration and that it would go against the principles of Conf. 2.12. Eventually the Parties decided to refer Doc. 4.45 back to TEC as a "diplomatic" form of rejection.

As the Fifth Conference of the Parties approached (held in Buenos Aires in April 1985), the Farm was no nearer producing any F2 generation turtles, let alone reliably doing so, as called for in Conf. 2.12. The UK Government decided that the simple solution was to call the Farm a ranch, and have it governed by Conf. 3.15 instead.

In 1979 the Parties felt that rather than adapt, (and consequently badly distort) Conf. 2.12 to deal with ranching as well as farming, it would be preferable to address the issues separately. Thus Conf. 3.15 was drawn up in 1981 to deal with ranching. The essence of Conf. 3.15 is that a population of an Appendix I species may be transferred to Appendix II for ranching purposes (and commercially traded), as long as the ranching operation conforms to the following standards:

- the operation must be primarily beneficial to the conservation of this population,
- the products of the operation must be adequately identified,
- the operation must have no significant detrimental impact on the wild population,
- the operation must be biologically and economically successful.

The UK Government felt the Farm satisfied all the requirements of Conf. 3.15 and submitted a proposal to transfer the CTF population of green turtles to Appendix II for ranching purposes. The CITES Secretariat opposed this proposal on the grounds that Conf. 3.15 was designed to apply to wild populations of Appendix I species and not to operations such as the Cayman Turtle Farm. The Secretariat suggested that the UK Government submit a Special Resolution calling for an exemption for the Farm from the F2 requirements of Conf. 2.12. This they did, but left the ranching proposal in for good measure.

At the meeting in Buenos Aires, both of the UK proposals (and the ranching proposals of Indonesia, Surinam and France) were rejected by the Parties.

The Parties believed that any such legalisation of trade in turtle products would have severe detrimental effects on wild turtle populations. The ranches would not be able to replace wild turtle products on the markets as claimed, but would merely stimulate new ones such as the former large market of the USA, and the flagging market of the EEC.

In the particular case of CTF, the Parties agreed with the Secretariat that it was not appropriate to call the Farm a ranch under Conf. 3.15. The Special Resolution was rejected for the above reasons, and on the grounds that it was not a desired precedent to deal with an uplisting or delisting of a species by a Resolution and not a Proposal. (Resolutions only require a clear majority, whereas Proposals have the in built safety-net feature of requiring a two-thirds majority. Usually any movement of a species from one Appendix to another is done through such Proposals.)

In some ways, however, these were merely peripheral reasons why the CTF proposal and resolution were rejected. The fundamental reason was that from the production figures submitted by the Farm, it was quite apparent that the Farm was not successful in reliably producing F1 generation animals, let alone F2. Biological success (and concomitantly, economic success) is a fundamental requirement in CITES for all farming and ranching operations. CTF quite clearly did not fulfil these requirements.

### ANALYSIS OF CTF PRODUCTION FIGURES

The current number of turtles held at the Farm is approximately 22,000, of which 283 are used for breeding. (The figures used are taken from the UK ranching proposal submitted in Buenos Aires, so will be slightly out of date. When approached for the latest figures, the CTF refused to give Greenpeace this information.)

The breeders are divided into the following groups: 88 purchased from various countries in the Caribbean (CWO), 96 purchased from Mexico (MEX), 59 were raised from eggs collected from the wild (FR), and 40 from eggs conceived and hatched in captivity (FRC). (Only the offspring of this last group will form the F2 generation).

For the eggs collected from the wild, the average hatch rate was approximately 70%. Limited studies have shown the hatch rate to be 80-90% for nests in the wild. For adults collected from the wild, the hatch rate of eggs conceived in captivity drops to an average of 35% for CWO animals and 32% for the Mexican animals — half that of the wild-collected eggs. The hatch rate

of the farm-raised turtles drops to 9.6% and down to 7% since 1978 when they began nesting in appreciable numbers. The true F1 generation animals (FRC) have only had two turtles nesting in 1984 and 1985, and none of the eggs have yet hatched.

Equally of interest is how many of these turtles survive to slaughtering age (usually 3 to 4 years). The Farm provides data of animals surviving to one year, expressed as a percentage of animals hatched. For a measure of overall productivity it is also important to know the proportion of all eggs laid which hatched and survived to one year. For captive wild adults, the average percentage of hatchlings reaching one year is 32%, (3099 animals), but is only 10% of the total number of eggs laid. Since 1978, 22% (116 individuals) of the hatchlings of the farm-raised turtles survived to one year. This is 1.4% of the overall number of eggs laid. (See Table 1.)

In their ranching proposal at the 1985 Meeting of the Parties, the Farm stated that it expected to produce at least 10,000 hatchlings per year from the Captive Wild Stock breeders, which should provide sufficient time for the problems associated with the farm raised animals to be solved. "Assuming a mortality of 50% and 10,000 hatchlings per annum, production of 5,000 animals for processing per annum is expected" (Doc. 5.44 Annex 3).

However, as Fig. 1 illustrates, such a level of productivity is highly unlikely. After approximately 3 years, the mortality of age class C8 was 84.3%; for the age class C9, it was 97.7%; and for the age class C10, it was 60.7%. (Age class C8 assumes a harvest of 500 animals).

A detailed analysis of the productivity of the farm raised turtles shows that they are unlikely to be able to replace the captured wild adults as their productivity declines. Since 1978, the maximum number of off-spring for farm raised turtles of any age class to survive to one year has never been more than 210 animals.

Furthermore, the overall productivity of farm raised animals measured by the number of hatchlings surviving to one year, and expressed as a percentage of the number of eggs laid, never exceeded 3.3%. This would mean that even under optimum conditions, 150,000 eggs would have to be laid to achieve economic viability. To date, the maximum number of eggs laid in any year is only 13,212.

#### UK FLOUTS CITES: CONTINUES IMPORTS OF CTF PRODUCTS

The UK Government have always maintained that they will not sign a Convention that they do not intend to abide by, unlike so many other countries. It is, therefore, difficult to understand why products from CTF are allowed to be imported into the UK, and subsequently laundered throughout Europe, under a captive bred exemption.

The British Government's argument that Conf. 2.12, as a subsequent resolution, is not part of the actual CITES agreement and therefore is not binding, is specious. Although a strict legal interpretation would confirm the UK's position, it was clearly the intention of the Parties through Conf. 2.12 to clarify what was meant by "bred in captivity" in the original agreement. This clarification has not changed the original agreement, merely solved the problem of differing interpretations. A Court of Law would clearly look at Conf. 2.12 for guidance as to the real intention of the Parties.

For the UK Government to continue to insist that CTF's "farm raised turtles" are captive bred, is a flagrant breach of CITES. This breach, allowing the sale of "illegal" products throughout Europe, undermines any attempts by Britain to improve the EEC's tarnished image within CITES. Thus their CTF policy seriously weakens any attempts by Britain to be an active party in the monitoring and enforcement of CITES.

#### CONCLUSION

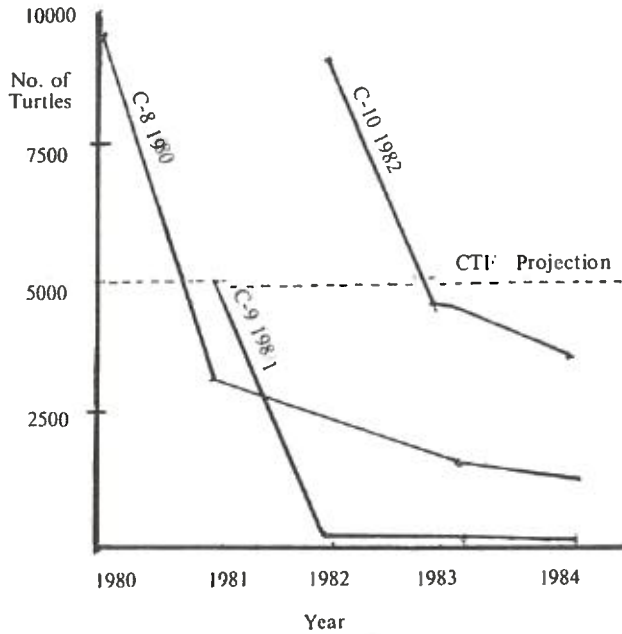
It is beyond dispute that the intention of the Parties is that any farming or ranching venture must not constitute a continuous drain on wild populations. It was for this reason that the F2 requirement for farming wild populations was introduced.

From the analysis of the Farm's productivity, it is equally clear that CTF has only been able to continue as a result of the original adults imported from the wild. If the original decision had been only to import eggs laid in the wild, the Farm would have had to close long ago.

There can be no clearer signal to the UK Government than the decisions concerning Conf. 2.12 and CTF taken at the last two Meetings of the Parties. If Britain persists in its endeavours to bypass the will of the Parties, and raise this issue again before the Farm reliably produces F2 generations, or continues to import CTF products, it will seriously tarnish the UK's image as a responsible member of CITES.

In Buenos Aires, the Secretariat heavily criticised the EEC for its failure to adequately implement CITES. The underdeveloped countries will have no incentive to fully implement CITES when the example of the EEC remains so bad.

Fig. 1. Survival of age classes, C-8, C-9 & C.10.



N.B. C-8 assumes a harvest of 500 animals

Table 1. Productivity of Farm-Raised Turtles

Year	Eggs Laid	Numbers Hatched	Numbers Surviving to 1 year	% eggs laid surviving to 1 year
1978	4293	1159	143	3.3
1979	8462	604	210	2.5
1980	8861	370	72	0.8
1981	8928	25	0	0
1982	13212	74	25	0.2
1983	9271	546	59	0.6

Source Duc 5.44 Annex 3

## CAYMAN TURTLE FARM REPLIES

*Dr James R. Wood, Managing Director of Cayman Turtle Farm (1983) Ltd., makes the following comments in response to the above paper, "Cayman Turtle Farm", by Jeff Canin:*

1. CTFL was originally established in Salt Creek in 1968 and moved to the land-based tank system in 1970-71. The farm was purchased in April 1983 by the Cayman Islands Government.

2. CITES is a treaty to control the trade in endangered and threatened species of wildlife not a treaty to prevent trade. There is absolutely no reason why the rational utilization of sea turtles under either CITES ranching or farming criteria should be anything other than beneficial to sea turtles. The fact that not a single turtle proposal was approved at the Buenos Aires CITES conference due to an intense lobbying effort by the various environmental groups represents a failure on the part of CITES to live up to its obligation for an objective, rational and non-emotional review of the proposals.

3. I would agree that at the present time the reproductive performance of the farm reared breeding stock on its own is inadequate to maintain a reasonable level of production. Obviously these problems must be solved or there is no long term future for turtle farming although turtle ranching would still be viable. I am hopeful that the problems will be solved but solutions will not be found by quitting at this stage.

4. While production has not been as great as we would like it has been sufficient to allow CTFL to release into Cayman waters some 14,421 green turtles during the past seven years. Of these 6,909 were yearlings while the remainder were hatchlings. Current evidence indicates that many of these turtles have survived and remained in Cayman while several tag returns have been received from Cuba. It is worth noting that captive females lay 2 to 5 times the number of eggs per season as do turtles in the wild.

5. Either through research done on site or through animals or materials provided to outside investigators, CTF has played a part in over 60 scientific papers enhancing the general knowledge of sea turtles. CTF was the first to successfully breed the green sea turtle in captivity. In 1986 CTF was the first to successfully breed the critically endangered Kemp's ridley sea turtle. Much of this work could not have been done were it not for the facilities provided by a commercial sea turtle farm.

6. It is not for me to comment on the position taken by the UK Government regarding the products of CTFL. I would point out that the turtle farm was founded 5 years before the initial meeting of CITES. The last collection of eggs from the wild occurred in March 1978. For the past 9 years the farm has been totally independent of the wild. All products sold are derived from turtles which were conceived and reared in a totally captive environment and as such can only be referred to as captive bred.

CAYMAN TURTLE FARM (1983)LTD.

James R. Wood, Ph.D.

Managing Director

PO Box 645, Grand Cayman, Cayman Islands, British West Indies.