

BALAZS
CAYMAN
DECEMBER
2012

Traveler	eTicket Number	Frequent Flyer	Seats
BALAZS/GEORGEHMR	0162346952456	UA-KF18XXXX	37D/28D/29D/---/---/52G

FLIGHT INFORMATION

1210-55 N6H576

Day, Date	Flight	Class	Departure City and Time	Arrival City and Time	Aircraft	Meal
Sat, 08DEC12	UA1159T		HONOLULU, HI (HNL) 10:18 PM	LOS ANGELES, CA (LAX) 5:30 AM (09DEC)	757-300	Purchase
Sun, 09DEC12	UA1410T		LOS ANGELES, CA (LAX) 6:30 AM	HOUSTON, TX (IAH -BUSH INTL) 11:55 AM	737-800	Purchase
Sun, 09DEC12	UA1494T		HOUSTON, TX (IAH -BUSH INTL) 1:05 PM	GRAND CAYMAN ISLAND, CAYMAN ISLANDS (GCM) 4:58 PM	737-700	Purchase

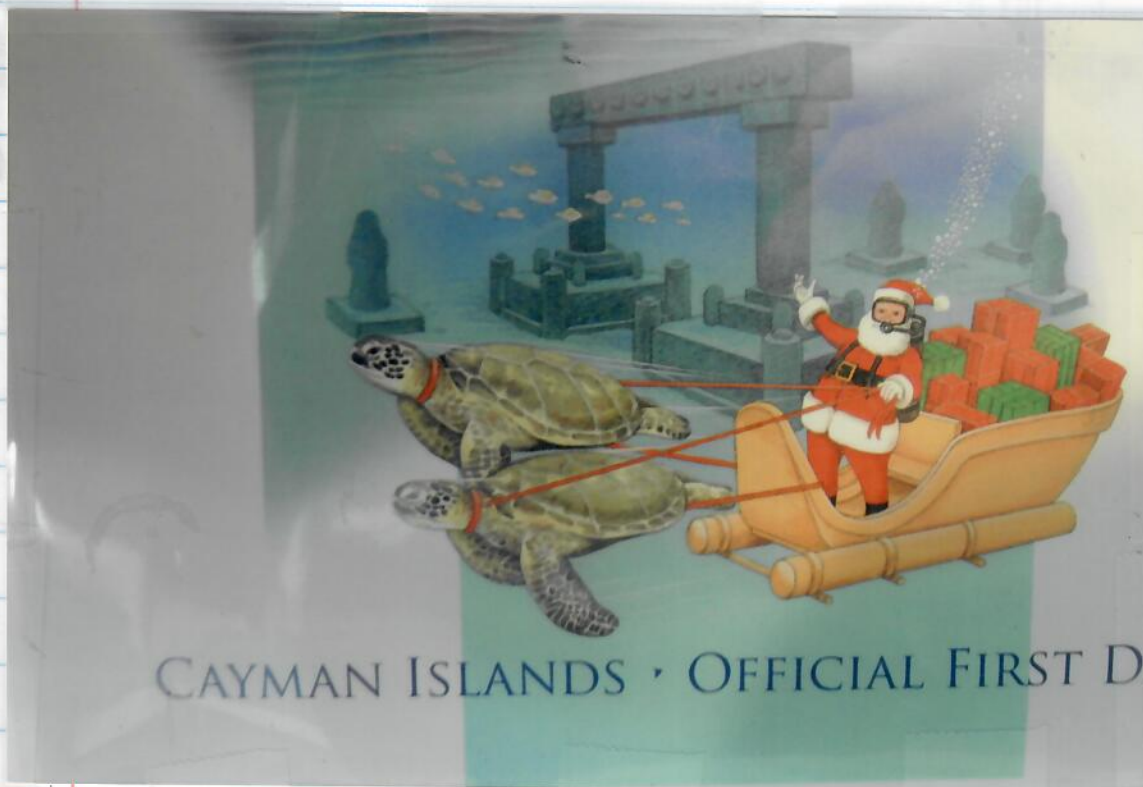
Thu, 13DEC12	UA2731U		GRAND CAYMAN ISLAND, CAYMAN ISLANDS (GCM) 3:25 PM	CHARLOTTE, NC (CLT) 6:20 PM	A-320	
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Flight operated by US AIRWAYS.
If this is an originating flight on your itinerary, please check in at the US AIRWAYS ticket counter.

Thu, 13DEC12	UA2387U		CHARLOTTE, NC (CLT) 8:20 PM	SAN FRANCISCO, CA (SFO) 11:02 PM	A-320	Purchase
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Flight operated by US AIRWAYS.
If this is an originating flight on your itinerary, please check in at the US AIRWAYS ticket counter.

Fri, 14DEC12	UA663 U		SAN FRANCISCO, CA (SFO) 8:40 AM	HONOLULU, HI (HNL) 12:05 PM	777-200	Purchase
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UNITED 

BALAZS/GEORG

REC LOC-N6HS76 PRNTR-B5C5AA

UA 1494 GCM GRAND CAYMAN I

UA 1410 IAH

UA 1159 LAX

HNL/ON
08DEC12/0855P

UA 4016617984



A STAR ALLIANCE MEMBER ☆

NAME: BALAZS/GEORGEH

DATE: 09DEC 80

FF#: KF185678

MILEAGE: 1145 MILES

FLIGHT:UA 1494Y

GATE: ***** SEAT:29D

DEPART: 105P

HOUSTON

ARRIVE: 457P

GRAND CAYMAN ISLAN

BOARD TIME: 1230P

01623469524574

UNITED 

NAME: BALAZS/GEORGEHMR

DATE: 08DEC

FF#: KF185678

N6HS76

167

B1 617984

FLIGHT:UA 1159Y

GATE: 9

SEAT:37D



BOARDING GROUP: 05

01623469524574

LAX ETICKET

BOARDING PASS

A STAR ALLIANCE MEMBER ☆

NAME: BALAZS/GEORGEH

DATE: 08DEC 167

FF#: KF185678

MILEAGE: 2556 MILES

FLIGHT:UA 1159Y

GATE: 9 SEAT:37D

DEPART: 1018P

HONOLULU

ARRIVE: 530A

LOS ANGELES

BOARD TIME: 943P

01623469524574

A STAR ALLIANCE MEMBER ☆

NAME: BALAZS/GEORGEH

DATE: 09DEC 105

FF#: KF185678

MILEAGE: 1379 MILES

FLIGHT:UA 1410Y

GATE: ***** SEAT:28D

DEPART: 630A

LOS ANGELES

ARRIVE: 1156A

HOUSTON

BOARD TIME: 555A

01623469524574

9/1
US AIRWAYS
BAG CLAIM CHECK
BALAZS/GEORGI
13DEC12 14:07 PM GCM

UA 663 HNL PNR:
US 1447 SFO FW9N4B
US 822 CLT
BAGS CHKD: 000001 OF 01

US090283



①

U.S. AIRWAYS



AZS/GEORGEHMR

FW9N4B/US ZONE 5

KF185678UA

GRAND CAYMAN ISLAND
CHARLOTTE

FLIGHT DEPARTS DATE
22 325P 13DEC

FL BOARD TIME SEAT
3 240P 15A

U.S. AIRWAYS



AZS/GEORGEHMR

FW9N4B/US ZONE 5

KF185678UA

CHARLOTTE
FRANCISCO

FLIGHT DEPARTS DATE
22 820P 13DEC

FL BOARD TIME SEAT
3 750P 13A

U.S. AIRWAYS



AZS/GEORGEHMR

NGHS76/UA

KF185678

FRANCISCO
HONOLULU

FLIGHT DEPARTS DATE
23 0840 14DEC

FL BOARD TIME SEAT
3 0750 52G

1881
138 11

SUNSHINE SUITES
RESORT
GRAND CAYMAN

345-949-3000 • 877-786-1110
www.sunshinesuites.com

Walter Mustin, Ph.D.
Chief Research Officer

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www.turtle.ky

Timothy Adam

Managing Director

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8 www.turtle.ky

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Conservation
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EXETER
Cornwall

Campus
TR10 9EZ
UK
tel.
44 1326
371 861



89010155050101753870

345 9390363



89010155050101753870

9/5am CTP

(3)

12/10-2012 Monday Meeting Room

Raymond
Chris Jackson

CATHERINE CRAVEN TEXAS A&M

78 MALES of

Thesis

350 Breeders NOT MANY wild

2012
43,000 eggs

2006
7,000 eggs

Custom diet

03 06
Cavalina Meal

Feb March ^{weeks} Assessment
All taken out of tank

Legacy turtles 630 lb Spunky

Texas Breed
Am fat food

Alabama MN

700. Ton
22,000 Ton AT Atmp
1 Ton a day

STARTED
2008 7/01A
2009

Ston. Green Turn

Guaranteed Analysis

Crude Protein not less than 36.00%
Crude Fat, not less than 3.50%
Crude Fiber, not more than 6.00%
Moisture, not more than 12.00%
Phosphorus, not less than 1.00%

Ingredients

Plant Protein Products, Processed Grain Byproducts, Grain Products, Animal Protein Products, Fish Meal, Fish Oil, Dicalcium Phosphate, Calcium Carbonate, Vitamin A Supplement, Vitamin D3 Supplement, Vitamin E Supplement, Calcium Pantothenate, Niacin Supplement, Ascorbic Acid (Vitamin C), Menadione Dimethylpyrimidinol Disulfite, Pyridoxine Hydrochloride, Riboflavin Supplement, Thiamine Mononitrate, Vitamin B12 Supplement, Folic Acid, Zinc Sulfate, Ferrous Sulfate, Sodium Selenite, Copper Sulfate, Manganese Sulfate, Ethylenediamine Dihydriodide

Ruminant Free

Net Weight: 50 lbs. (22.67kg)

Manufactured by:
SouthFresh Feeds
Demopolis, AL 36732



TIM -

TREATED NON-CRUEL WAY
IS IT HUMANE
STOCKING DENSITIES
HANDLING OF ANIMALS

Host MARKET EVENT students from
all over world.

Dr. Crocker
Dr Taylor
Dr Shields } Faculty

2011
Doug Mader
Silver

TARPLY - TEXAS A&M
Tissue

CHRISTINA (GINY)
"C39"

Breeding Pool

If Sick Adult - where moved to?

Adults or immatures sick - where to?

How many turtles are there?
PRODUCTION STOCK

Where are the bodies?

Inside Carcass - See Sick? Slaughter

Food Fed % body weight?

egg 4300 Hatchlings 2012 = ?

4500 4500 Advisory Board?

2300 hatchlings

299 Landfill - carcasses

hyperthermia

100 lbs Market
45 years

12-10-12 PM
Monday

TOUR
FACING

(7)

PUBLIC SIDE
AN EXHIBIT

EVERY DAY DRAIN
TANKS

NOW UNDER MICROSCOPE

INTENSE SCUTINY
LESSONS observations
prevent recurrence

12/11/12 "They're doing stuff we don't know
Tuesday what they're doing"
♀ 4 TO 1 ♀

overwhelmed
Down a trail where we
are overwhelmed

13 Living T-Hy
Ev Brand such opportunity

Gum by



GINA EBANKS
7th Generation
CAYMAN

12-12-12

wednesday

10:30
AM

DoE

Chairman of Board CTF

Ken Hilde

former Managing
Director of

Harbour success - 79% prior

"Turtle Research Advisory Meeting"

Joey - Advisory Board - come & went

- JANICE

1998 start nest monitor

2008 < change minimum size

> maximum size limit

Daytime nest count

C39

F4

Dept Agriculture

DoA

LIVE ANIMALS

Dept Environmental Health

"East End Heritage Day"

"Chief officers in charge of FAERS"
Strand Borden



**DEPARTMENT OF ENVIRONMENT
CAYMAN ISLANDS GOVERNMENT**

GINA EBANKS-PETRIE
Director

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7

(13)

TIM DOE

"Hatchling algae on shell - diphthery"

"Inflammatory bowel disease"

St. MATTHEW'S = wild turtles necrosed

"Market workshop"

"SO PASSIVE"

4:15pm Meet Tim Adam, WALTER MUSTIN, Annette, TW, GB.

- TW - ① Lesion ② Not optimal Body Condition
③ High mortality ④ Vet ^{lack} oversight ⑤ insufficient ^{INFRA STRUCTURE} staff
JOE PARSONS 58 y.o. ⑥ insufficient staff

Flow Rate. sea fan,

Myrtle's - 949-7868

Country 3 - 945-4079

Western

Liberty's - 949-3226

Alfresco's - 947-2525

Copper Kettle 949-2696

Kettle

2/24

Flow rate

8:30 AM PST
Dec. 16, 2012

(15)

Telecon DOUG MADER - April 2012
at St Matthew vet school teaching class -
invited by Walter to CTF since he had
never been there. Saw slaughter
house after dispatch - meat laid out.
Saw "Filtration (Seawater) System".
Didn't see lesions but recommended



Mixed
with VASOLINE
APPLIED WITH
PAINT BRUSH



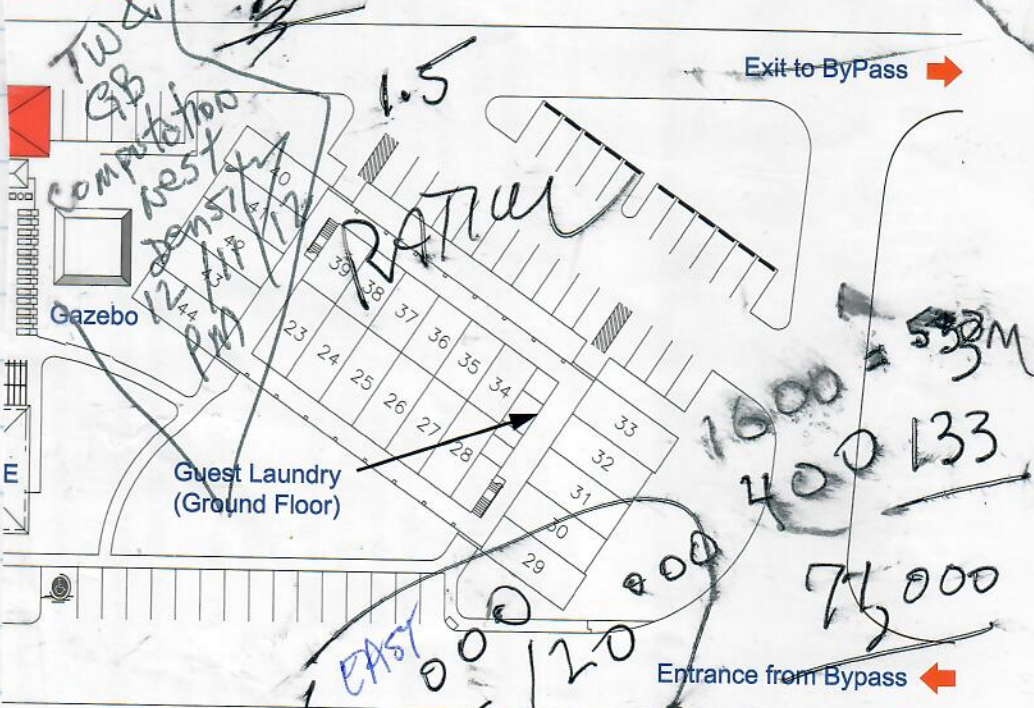
990M²

2000



64 X 14M

Costless - located at Governor's Square



Annex

Mel G
242 107

on the MOVE
MEET ENA
3 May 16
Feeding STRATEGY ANALYSIS

- JOE PARSONS Godley
- TOUR GULLING INCREASED ATTENTION TO
- WORMING
- GODFREY DAVID
- DEPTH OF RUM GROSS LESION BITCHES NETA

Turtles more imp #5
 - Ten Fish [CY#1]
 NETA
 Spout fish - 1/2
 LUNCH STEW

CUSTOMER SERVICE
DIGICEL
623.3444

Hi 12/9/12
Left a note with George
FW.
? Dinner at 7.30pm
and/or
? Breakfast at 7.30am
Best B.T.A.

TERMS OF REFERENCE FOR INSPECTION OF CAYMAN TURTLE FARM

To conduct an inspection of the Cayman Turtle Farm in order to:

- Determine whether standards of care meet those required to ensure that the operation is conducted in a "humane (i.e. non-cruel) manner";
- Examine in particular standards of husbandry and care including attention to issues such as:
 - Water quality;
 - Stocking densities;
 - Treatment and prevention of disease and injury;
 - Levels and causes of mortality;
 - Levels (if any) of severe injuries;
 - Levels (if any) of congenital deformities;
 - Handling of animals by guests (including safety of both animals and guests);
 - Slaughter methods and practice;
- Suggest any reasonable steps by which animal husbandry and care might be improved at the farm.
- Comment on the contribution the CTF makes to conservation of turtle species.

The inspection should be made on the basis of the standards of practice that would apply to a comparable intensive livestock production facility in the UK or USA.

By 31 January 2013, to provide a report on the above to: Cayman Turtle Farm (1983) Ltd.

26th November 2012

Contrary to the WSPA's statement on the independent review currently being carried out at the Cayman Turtle Farm, the review is indeed an independent one, clear of bias either in favour of or against the Cayman Turtle Farm.

The primary goal of the independent assessment, as stated in its terms of reference, is to determine whether standards of care meet those required to ensure that the operation is conducted in a "human (i.e. non-cruel) manner.

According to the review terms of reference, the inspection team is expected to examine and pay particular attention to issues including water quality; stocking densities; treatment and prevention of disease and injury; levels and causes of mortality; levels (if any) of severe injuries; levels (if any) of congenital deformities; handling of animals by guests (including safety of both animals and guests); and slaughter methods and practice.

All of these areas are directly related to the welfare of the turtles, and also correlate with the areas of concern alleged by the WSPA in its own report. We therefore are at a loss to understand why the WSPA claims the review does not have the welfare of the turtles in the care of the Cayman Turtle Farm at heart.

The terms of reference also ask the team of independent experts to suggest any reasonable steps by which animal husbandry and care might be improved at the farm; and to comment on the contribution the Cayman Turtle Farm makes to conservation of turtle species.

It would seem clear to us from the stated terms of reference that the inspection is centered around both turtle welfare and conservation – both of which the Cayman Turtle Farm is most focused on and concerned with.

Another area of criticism from the WSPA is the standards to which the Cayman Turtle Farm will be held by the independent review. Given that the Cayman Turtle Farm is a completely unique facility and there is no other of its kind to compare it to, the terms of reference also state that "The inspection should be made on the basis of the standards of practice that would apply to a comparable intensive livestock production facility in the UK or USA."

The WSPA takes issue with this, arguing that the turtle is not a domesticated species. However, neither were pigs, cows or chickens – until they were in fact farmed and domesticated.

The WSPA then turned its criticism on the make-up of the review team. All four of the inspectors are well known turtle experts and members of the International Union for the Conservation of Nature [IUCN] Marine Turtle Specialist Group [MTSG].

The team conducting the review is comprised of the following experts:

Mr. George Balazs is a sea turtle scientist with 40 years of professional experience in Hawaii, the Pacific Islands, and globally. He has published over 100 journal papers on sea turtles. He has been a member of the IUCN Marine Turtle Specialist Group (MTSG) since 1976, and is currently the MTSG Vice-Chair for the Pacific Islands Region. In 2002 the leading conservation organisation in the USA, the National Wildlife Federation, honoured Mr. Balazs with its National Conservation Achievement Award for exemplary leadership in protecting wildlife and natural resources. He recently completed a 3-year term on an Institutional Animal Care and Use Committee which ensures that animal welfare is humanely addressed. In March 2012 he was awarded the Lifetime Achievement Award by the International Sea Turtle Symposium.

Dr. Annette Broderick is a Senior Lecturer in Conservation Biology. She has been researching marine turtle populations for over 20 years, with much of her work focusing on the UK Overseas Territories, including the Cayman Islands. Her research focuses on the conservation and monitoring of marine turtle populations, in particular reproductive investment; impacts of temperature on hatchling production; migration and navigation of adults and the management of marine turtle harvests. She is a member of the IUCN Marine Turtle Specialist Group (MTSG).

Dr. Thierry Work is a veterinarian, and a wildlife disease expert with 20 years of professional experience in Hawaii, the Pacific Islands, and globally on diseases of sea turtles. He is credited with over 40 journal papers on sea turtles. He is a member of the IUCN Marine Turtle Specialist Group (MTSG) and the IUCN Wildlife Health Specialist Group (WHSG).

Professor Brendan Godley is a marine conservation scientist and qualified veterinarian who has been working on marine turtles around the world for over 20 years. He is a member of the IUCN Marine Turtle Specialist Group (MTSG).

Professor Godley was selected by the UK Department of Environment, Food and Rural Affairs [DEFRA] to conduct an inspection in 2002 on the Cayman Turtle Farm. Furthermore in addition to his involvement with the IUCN MTSG, he serves on the IUCN Veterinary Specialist Group, and the Turtle Implementation Group for the UK Biodiversity Action Plan for Marine Turtles.

His marine turtle studies to date have been diverse and have involved work in the Mediterranean (Northern Cyprus and Turkey), the Caribbean (Trinidad & Tobago and the UK Overseas Territories including the Cayman Islands), west Africa (Guinea Bissau) and the south Atlantic (Ascension Island) as well as studies of marine turtles in British waters.

Despite the clear qualifications of these individuals to conduct a thorough review of the Cayman Turtle Farm, the WSPA has complained that there is no "animal welfare expert" on the review team.

First – how does the WSPA define an "animal welfare expert"? On the review team, all members are definitively and unarguably experts on sea turtles, two members are also qualified veterinary doctors and a third has three years' experience on an Institutional Animal Care and Use Committee (IACUC) combined with formal training in animal welfare.

(27)

Regarding the WSPA's complaints that the review team is not independent without a WSPA representative taking part, we stand by our assertion that it would be less "independent" to include a WSPA representative on the team, as this would introduce its own bias – as would including a member of the Cayman Turtle Farm staff on the review committee. For this reason, neither a WSPA representative nor a Cayman Turtle Farm representative are included on the team, for the very purpose of ensuring that the reviewers come to their own independent conclusions.

Regarding the complaints of the WSPA of potential bias, which would seem to refer to inspection team members Professor Brendan Godley and Dr. Annette Broderick having conducted research involving the Cayman Turtle Farm in the past, we completely refute this insinuation.

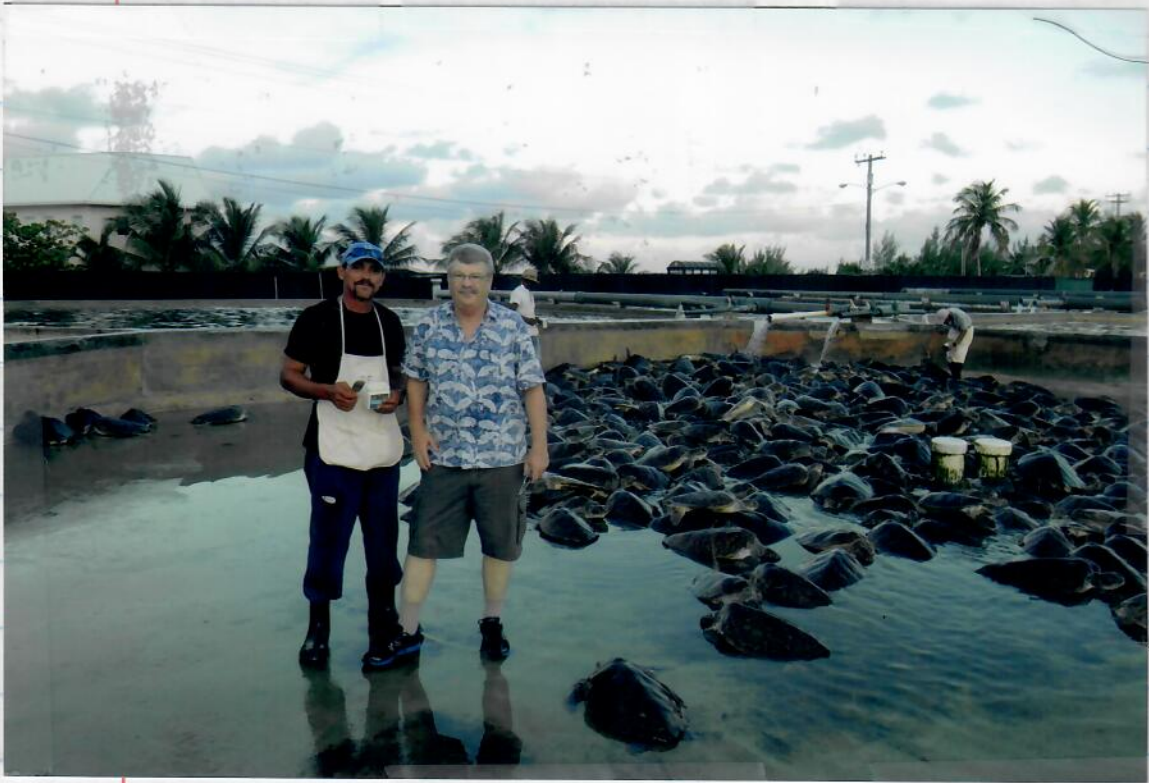
That Professor Godley and Dr. Broderick have been in contact with the Cayman Turtle Farm over the years in the course of their work is not unusual given that the Cayman Turtle Farm is the only organisation of its kind in the world focusing on captive breeding of sea turtles and maintaining a stock of sea turtles of various ages – and the work of both Professor Godley and Dr. Broderick is centered around research on sea turtles.

Neither Professor Godley nor Dr. Broderick have ever been employed or received remuneration from by the Cayman Turtle Farm.

Professor Godley conducted a review of the Cayman Turtle Farm in 2002 that was funded by the UK Government. He was selected by the UK Department for Environment, Food and Rural Affairs (DEFRA) to conduct this review based on his expertise and qualifications. The terms of reference of that inspection included among other things to "... determine whether standards of care meet those required by Resolution Conf. 11.14, that the operation is conducted in a humane (i.e. non-cruel) manner ...". Obviously DEFRA considered him qualified and competent to conduct that inspection which included a review of animal welfare concerns.

The report of the independent review committee is due at the end of January 2013, and the Cayman Turtle Farm – as has been publicly stated on several occasions – ~~is committed to following the~~ intends to pursue recommendations arising from this report and is committed to making the findings of the independent review report public.

It must also be noted that the Cayman Turtle Farm was not forced into this independent review. We chose to have it conducted and agreed to abide by its findings in order to address the areas of concern which arose due to the WSPA's allegations, and to reaffirm that the Cayman Turtle Farm is a bona fide research and conservation facility which does not practice or condone animal cruelty, and which is committed to the wellbeing of the turtles in our care.



AM 12/12/12
Wednesday

29



12/12/12 AM Wednesday

176



176 (0) AA (0) 176

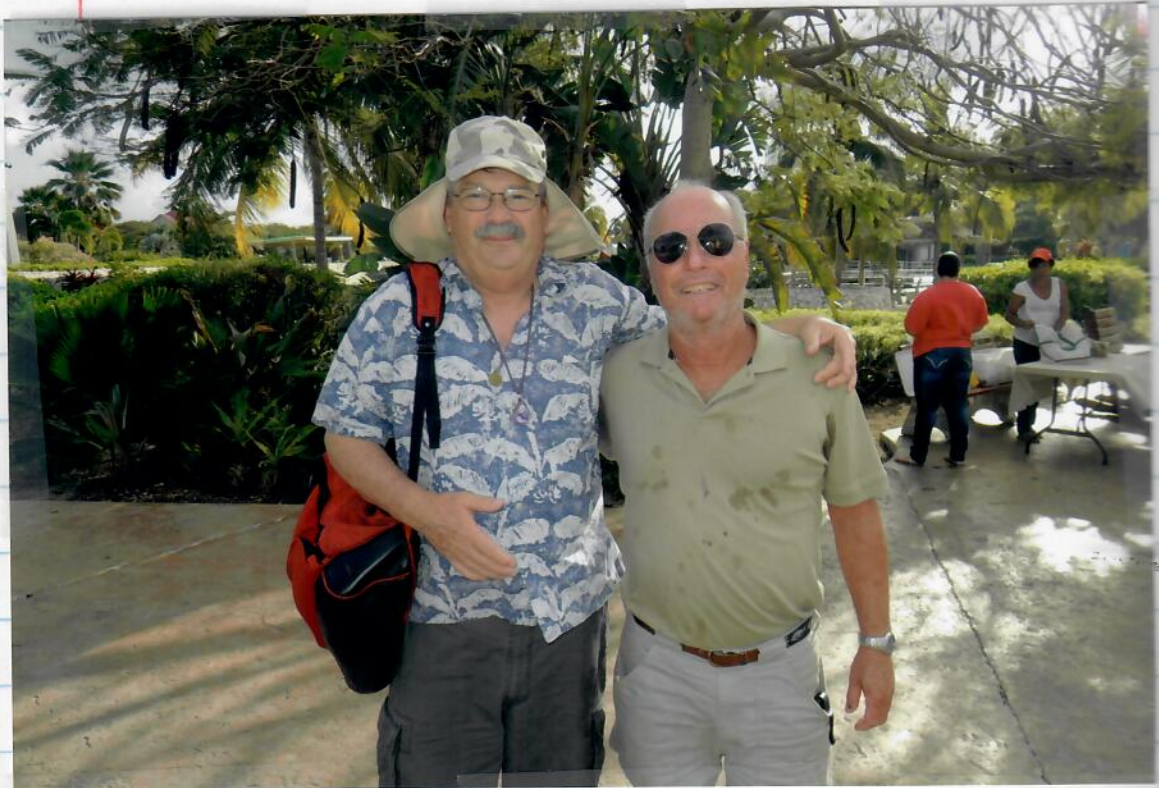
specific HELPFUL TO CTF

- Retain JOE AS CONSULTANT
- Send pdf "Best MANAGEMENT PRACTICES FOR LOUISIANA Alligator Farming" June 2011
- ~~Monel~~ ^{use} Inconel self-locking tags instead of Roto Tag Prepunch
- density possible on ^{CTF} Artificial Beach ^{see} p.16

Pre-punch for plastic
Roto Tag application



Pre-punch for plastic
Roto TAG application



Pat & Joe
1972

JOE PARSONS
STARTED FARM 1972

RETIRED ~ 3 years

35



25



VIVINES

AS PER
MAC

5-16 BAG CTF

#45 cy

spleen, meat, fat, cartilage

#60 cy STEW = Meat, Lung, leg, Liver,
FAT, FLIPPER

TURTLE

Breadfruit

BANANAS

PLANTAINS

RUM CAKE

RICE - SALAD

MYTTLES

#16.00 cy



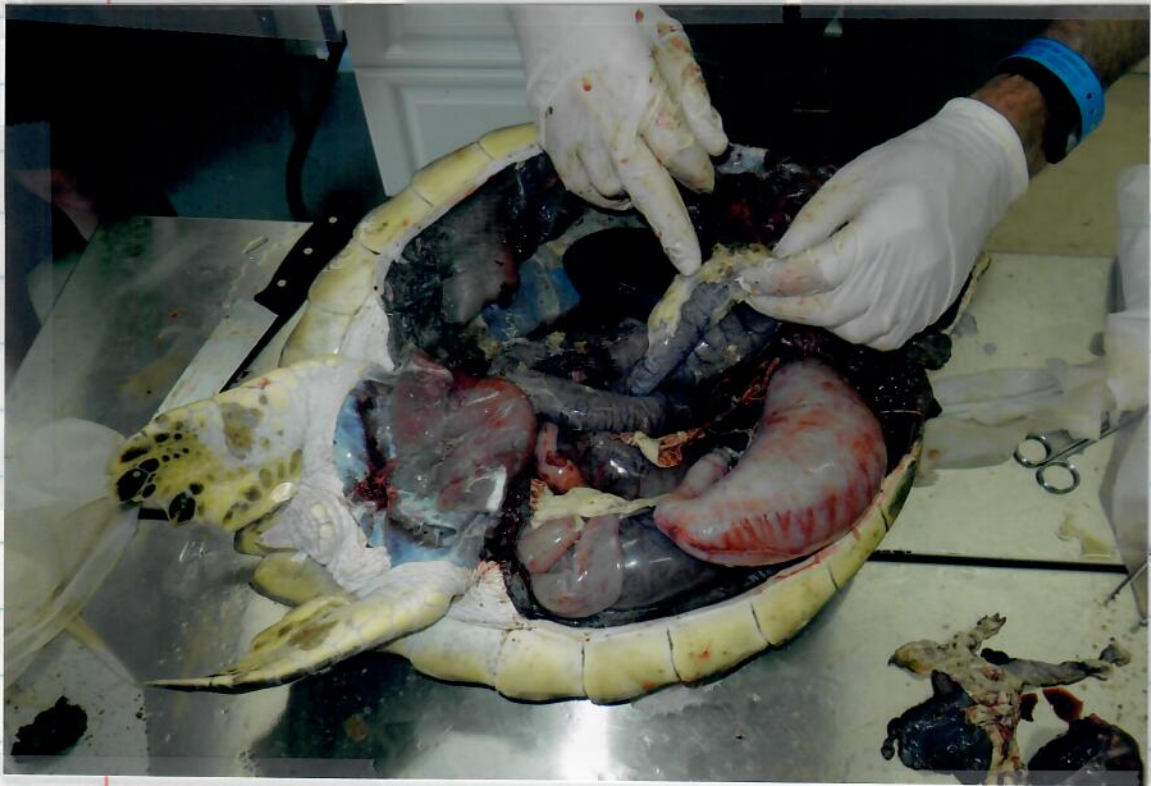
37

Bill Bar Off

As per



PC



Subject: FW: Inspector GB's remaining list of items for Thursday

-->

, 12 Dec 2012 03:22:12 +0000

--> - 'on the move' feeding of pellets strategy

- meet with Joe Parsons?

- Immediate proactive treatment option with very low potential for harm--- Gential Violet (as per early 1980's CTF treatment)

- Worming- medication used?

- Depth of ulceration lesions- need sample from turtle(s) dispatched for TW to examine depth etc.

-Amakacin antibiotic- immediate administration

- "turtles more important than fish" in spite of being So Excellent a Fische"

- Local restaurant offering turtle stew (Thursday noonish)-- Janice?

- "Increased Attention to..." (praise)

- Re communicating with press/media answering questions etc.

- Final meeting we have with hosts- form agreement amongst the 4 of us how to handle.

-Outlier topic - David Godfrey NGO organization stance



Inspection of Cayman Turtle Farm (10-12th December, 2012): Report to the Cayman Turtle Farm (Ltd.)

George H. Balazs
Annette C. Broderick
Brendan J. Godley
Thierry M. Work

(Authors in alphabetical order)

Submitted to the Cayman Turtle Farm, 17th December 2012

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- A. Executive Summary
- B. Timeline of Visit
- C. Terms of Reference Item 1
- D. Terms of Reference Item 2
- E. Terms of Reference Item 3
- F. Terms of Reference Item 4
- G. Acknowledgements

A. Executive Summary

The authors hereafter referred to as the "the panel" were requested to carry out an inspection of the Cayman Turtle Farm (CTF) between 10-12th December according to bespoke terms of reference (**Appendix 1**). The panel concluded that there were no significant issues of concern regarding the public facing aspect of the operation. For the production side of the operation, however, there is clearly room for improvement in standards of care which will require immediate changes in infrastructure, processes, staffing and resources to rectify. Key among the panel's concerns were the incidence of skin lesions and mortality levels in younger age classes. CTF should immediately implement additional intensive treatment and management of all animals with lesions based on best available information, euthanasia of animals with poor prognosis, and undertake veterinary-pathological investigations of dead animals. The panel was concerned that similar recommendations had been made in the past but have not been acted upon. A series of potential management recommendations are made. The panel concluded there was strong evidence for the positive conservation impact of CTF with regard to: providing turtle meat (the national dish) for Caymanians thus alleviating pressure on the wild population; augmenting the local nesting population through past turtle releases; facilitating applied research over four decades; and increasing awareness of marine turtle conservation. The panel recommends that CTF develop a set of short and long-term goals to rectify existing issues and that an independent Advisory Board be assembled to help support CTF towards development and achievement of those goals. Given sufficient desire and motivation on behalf of managers and decision makers, the panel concluded that the recommendations in this report are fully achievable.

B. Timeline of Visit and Activities

- 10th Dec **am** Initial meetings with CTF management and tour of public facing facilities
pm Tour of production facilities and Q&A with production staff; Panel deliberations; Q&A with management; Observation of animals.

- 11th Dec **am** Observation of capture, movement and slaughter process with additional Q&A with production staff; Panel deliberations; Q&A with management; Observation of animals.
pm Panel deliberations; Observation of animals and ongoing management processes.

- 12th Dec **am** Observation of production tank drainage, cleaning, treatment regime and animal handling; Examination of animals; Meeting with Cayman Island Department of the Environment.
pm Panel deliberations; Q&A with recently retired production manager; Q&A with CTF management; Observation of animals and husbandry process; Panel deliberations.

C. Terms of Reference Item 1. Determine whether standards of care meet those required to ensure that the operation is conducted in a "humane (i.e. non-cruel) manner"

The panel concluded that there were no significant issues of concern regarding the public facing aspect of the CTF. For the production side of the operation there is clearly room for improvement in standards of care which require immediate changes in infrastructure, processes, staffing and resources to rectify. Key among the panel's concerns were the incidence of skin lesions and levels of early juvenile mortality. CTF should immediately implement more intensive treatment and management of all animals with such lesions, euthanasia of animals with poor prognosis, and undertake veterinary-pathological investigations of dead animals.

D. Terms of Reference Item 2. Examine in particular standards of husbandry and care including attention to issues such as:

Levels (if any) of severe injuries: A notable proportion of animals had quite severe skin lesions that included deep ulceration to the shoulder, forelimbs, head and hind limbs.

Levels and causes of mortality: Based on data presented by CTF, mortality levels in younger year classes are high and require intensive veterinary and management intervention. This includes potentially emerging conditions such as enteritis observed in three animals necropsied during the panel's investigation.

Treatment and prevention of disease and injury: Although there are processes in place to address existing lesions and ongoing mortality, they need to be intensified, enhanced and their efficacy assessed. The panel also noted that, based on visual examination of body profile, a notable proportion of animals appeared moderately emaciated.

Water quality: In the public facing tanks the water quality appears very clear. On the production side the visual appearance of the water varies from very clear for post-hatchling turtles to quite turbid in some of the tanks for the larger juveniles. In the absence of recorded skin lesions/mortality, the level of hygiene/water quality as observed would not be cause for concern. Given the health issues above, however, improvement of water quality both entering and exiting the farm has to be considered as part of a management plan.

Stocking densities: As an intensive-rearing facility, stocking density in the production side of the CTF is high. It should be noted that, during feeding, animals aggregate and density can appear artificially elevated. In the absence of recorded skin lesions, high mortality, and moderate emaciation, the stocking density, as observed, would not be cause for concern *per se*. Given the health concerns above, however, factors related to stocking density and feeding regime must be considered.

Levels (if any) of congenital deformities: No congenital deformities were observed.

Handling of animals by guests (including safety of both animals and guests): Given changes to operating practices where handling is supervised and handwashing is offered and encouraged, the panel had no concern in this regard.

Slaughter methods and practice: The inspection panel concluded that the slaughter was carried out humanely and hygienically. The process does, however, seem to afford an underutilised opportunity for gathering supplementary data for health monitoring and management of the herd.

E. Terms of Reference Item 3. Suggest any reasonable steps by which animal husbandry and care might be improved at the farm.

1. Immediate action:

- a. Intensive treatment and management of all animals with skin lesions based on all currently available information, euthanasia of animals with poor prognosis, and veterinary-pathological investigations of dead animals.
- b. Immediately retain services of a suitably skilled veterinary surgeon with experience in herd health or management of large numbers of animals in production facilities. This practitioner must be sufficiently resourced and empowered to effect the changes outlined below.

2. Longer term actions:

- a. Systematically document patterns and causes of skin lesions, buoyancy problems, enteritis, and other clinical problems, by year class.
- b. Systematically document and necropsy all mortalities to determine cause of death with archiving of tissues as appropriate.
- c. Using information from a and b above, design and implement management action to minimize morbidity and mortality. Possible actions to consider, many of which will need an increase in tank space, staffing and consumables, include:
 - i. Evaluating and documenting effects of stocking density or water quality on animal health.
 - ii. Detailed monitoring and documentation of behaviour, body condition and growth rates.
 - iii. Standardized audited protocols (feeding regimen, animal movement, tank management, clinical care, necropsy, record management).
 - iv. Enhanced ability to isolate sick or injured animals for observation and treatment.
 - v. Development of tank management to minimize transmission of potentially communicable diseases.
 - vi. Evaluating and documenting effects of feeding regimen and diet on animal health.
 - vii. Development of clear written criteria and guidelines for detecting health problems, deciding treatment, isolation or euthanasia of sick animals.
 - viii. Development of systematic and documented approaches to evaluate efficacy of treatment regimens.

ix. Investigate the efficacy of leaving a proportion of clutches *in situ* thereby liberating staff time for other management and in doing so, investigate and document the potential survivorship benefits to hatchlings.

x. Annual inspection of facilities by accreditation institution or government agency charged with regulation of animal agriculture (eg Cayman Islands Department of Agriculture).

d. The panel recommends that CTF develops a set of short and long-term goals to rectify existing issues and that an independent Advisory Board be assembled to help support CTF towards development and achievement of those goals. This would include scientists and managers from the Cayman Islands and overseas.

F. Term of Reference Item 4. Comment on the contribution the CTF makes to conservation of turtle species.

The panel judged that there was clear evidence for the positive impact of CTF which can be outlined as:

1. Consumption of turtles: Providing a sustainable source of turtle meat (the national dish) to Caymanians, where demand is still high, is an extremely important role of the farm. Without this source of meat, the pressure on wild populations would be higher, and we would anticipate an increase in illegal take, which already occurs to some extent. CTF cannot currently meet all demands and should consider prioritising selling meat to Caymanians. At present, meat is only sold at the CTF. Consideration should, however, be given to selling at other outlets to reach more remote locations on the island. A socio-economic study of the current users would be informative in making these decisions. We would encourage CTF to work with Cayman Islands Department of the Environment to develop protocols for detection of illegal turtle products by law enforcement officers and management of the sale of turtle shells.

2. Impact on local turtle populations: CTF-released turtles have clearly contributed to the enhancement of the wild nesting population. There is a need for a genetic study of wild nesting populations to fully ascertain the CTF contribution. At present there are concerns over the potential release of CTF animals into the wild or pathogens from the CTF effluent. Although no evidence of deleterious effects have been documented in wild turtles, we recommend that, in future, all animals released into the wild receive a veterinary certificate of health in conjunction with the health recommendations detailed above.

3. Science: The CTF has provided a population of turtles that have been the subject of numerous scientific studies that have been invaluable in understanding the biology of the green turtle. Many of these studies have been in collaboration with externally based researchers and have resulted in a plethora of high quality publications. The panel encourages CTF to continue embracing these activities.

4. Awareness and Education: A large number of visitors to CTF are exposed to outreach on biological and cultural conservation each year; however, such activities could be improved. There are currently few visitors to CTF going to the education centre. There are also opportunities to provide more information to visitors, at for example feeding time, when there is a willing audience.

Conclusion: Given sufficient desire and motivation on behalf of managers and decision makers, the panel concluded that the recommendations in this report are fully achievable thereby ensuring the long term health of the turtles that are such an important part of the heritage of the Cayman Islands.

G. Acknowledgements

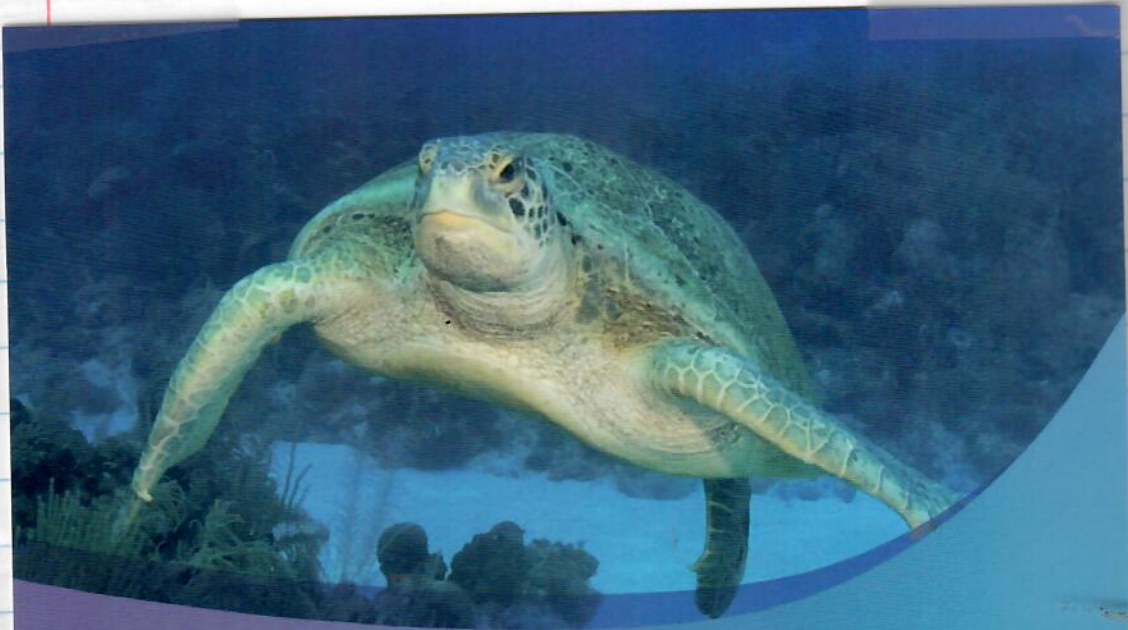
The panel would like to thank the staff of Cayman Turtle Farm and Cayman Islands Department of the Environment for their courteous, collaborative approach to our requests and questions.

Appendix 1: TERMS OF REFERENCE FOR INSPECTION OF CAYMAN TURTLE FARM

To conduct an inspection of the Cayman Turtle Farm in order to:

1. Determine whether standards of care meet those required to ensure that the operation is conducted in a "humane (i.e. non-cruel) manner";
2. Examine in particular standards of husbandry and care including attention to issues such as:
 - a. Water quality;
 - b. Stocking densities;
 - c. Treatment and prevention of disease and injury;
 - d. Levels and causes of mortality;
 - e. Levels (if any) of severe injuries;
 - f. Levels (if any) of congenital deformities;
 - g. Handling of animals by guests (including safety of both animals and guests);
 - h. Slaughter methods and practice;
3. Suggest any reasonable steps by which animal husbandry and care might be improved at the farm.
4. Comment on the contribution the CTF makes to conservation of turtle species.

The inspection should be made on the basis of the standards of practice that would apply to a comparable intensive livestock production facility in the UK or USA.



Cayman Islands

Green Sea Turtle
Chelonia mydas



Cayman Islands

Green Sea Turtle
Chelonia mydas



Turtle Farm
CAYMAN ISLANDS



Turtle Farm
CAYMAN ISLANDS



CAYMAN TURTLE FARM

Consultancy Report to DEFRA, 15th September 2002

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Foreign & Commonwealth
Office

B) EXECUTIVE SUMMARY ^{2 wks}

Between Friday 23rd August and Friday 6th September 2002 I travelled to Grand Cayman and whilst there undertook an inspection of the Cayman Turtle Farm (hereafter referred to as CTF) on behalf of the Government of the United Kingdom of Great Britain and Northern Ireland. This involved detailed observation of all currently used farm tanks both accompanied by farm staff and whilst independently moving through the farm. Observation was made of most of the key husbandry processes undertaken: feeding, cleaning, handling, movement and slaughter. In addition, free access was granted to farm records and numerous candid interviews granted with all key staff as frequently as requested to solicit additional detail of the production phases currently ongoing and those which will be resumed (breeding, hatching and hatchling rearing) upon completion of the remodelling of the site over the next 12 months.

I found that standards of care were sufficiently high and, in my professional opinion, the operation is carried out in a "humane (i.e. non-cruel) manner" as is required by CITES Resolution Conf. 11.14.

As per the terms of reference, I investigated key factors including:

- o water quality
- o stocking densities
- o the ability of animals to thermoregulate
- o treatment and prevention of disease and injury
- o levels and causes of mortality
- o quarantine practice
- o slaughtering methods and practice.

Although the operation is "humane", as with all intensive animal culture systems there are areas which should be targeted for improvement. These efforts may lead to increases in both welfare and production and I make a number of recommendations:

Contents

A) Terms of Reference

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D) Inspection/Consultation

- D.1 Water quality.
- D.2 Stocking densities.
- D.3 The ability of animals to thermoregulate.
- D.4 Treatment and prevention of disease and injury.
- D.5 Levels and causes of mortality.
- D.6 Quarantine practice.
- D.7 Slaughtering methods and practice.

E) Comparing standards with those required by UK legislation

- E.1 The Welfare of Farmed Animals (England) Regulations 2000 (SI 2000 No. 1870)
- E.2 The Welfare of Animals (Slaughter or Killing) Regulations 1995 (SI 1995 No. 731)

F) Recommendations

G) Acknowledgements

H) References

C) INTRODUCTION

There is little need to outline the background of the farm and its general methods. These are clearly outlined in the "Application to register a captive breeding operation involving *Chelonia mydas* on Grand Cayman, Cayman Islands: submitted to CITES Management Authority of the United Kingdom of Great Britain and Northern Ireland pursuant to Resolution Conference 11.14." (Hereafter referred to as "The current CITES application"). I found nothing in my visit to the farm as part of this consultancy and in a previous visit to the farm in 1998 to contradict the information detailed in the current CITES application. However, there was no breeding pond, hatchery or hatchling rearing at the time of inspection as a result of changes post-Hurricane Michelle which are outlined in the current CITES application. It is expected that these will resume by the summer breeding season, 2003.

D) INSPECTION/CONSULTATION

I follow the structure outlined in the terms of reference:

- D.1 Water quality.
- D.2 Stocking densities.
- D.3 The ability of animals to thermoregulate.
- D.4 Treatment and prevention of disease and injury.
- D.5 Levels and causes of mortality.
- D.6 Quarantine practice.
- D.7 Slaughtering methods and practice.

D.1 Water quality

Water quality is one of the most important issues pervading all husbandry issues at CTF as staff over the years have found water quality to be key to herd health and productivity:

1. Each tank is supplied by a constant flow of fresh seawater (Fig. 1). Water enters each tank separately before circulating and exiting through a variety of drainage systems. In the smaller tanks water drains through a pipe in the centre of each tank. In the larger tanks there is both a central drain at the dependent base of each tank and a surface overflow. Water from both of these exit via a water level adjusting chamber (Fig. 2) into common drainage which is channelled back to the sea. As it is a matter of fundamental importance, it should be stressed that there is no water through-flow from one tank to another.

Fig. 1. Water inflow to a large tank

Fig. 2. Water outflow from a large tank

Throughput of water is very high. Current needs are met by four electrical pumps: two axial flow (Farmers) and two centrifugal (Demmings) pumps which move 5000 gallons.min⁻¹ and 3500 gallons.min⁻¹, respectively (Fig. 3). This constitutes 12.24 million gallons. day⁻¹. There is full redundancy within this system with only one of each unit being used at any one time. As a contingency against possible power outages, a self contained diesel pump with a capacity of 3500gallons.min⁻¹ is maintained. Additionally, as part of the

redevelopment of CTF, the construction of the new breeding pond will be accompanied by an additional pumping capacity of 5000 gallons.min⁻¹

Fig. 3. CTF Pumphouse

Given that the current volume of tanks served by the pumps is 580,000 gallons (J. Parsons pers. comm.), simple arithmetic dictates that the mean turnover rate is 21.1 times per day.

2. Turnover in smaller tanks used for smaller individuals (Fig. 4) and those under quarantine or subject to clinical treatment is much higher than the larger ponds where both adults and large juveniles are kept. In addition, these are emptied at least once per week and cleaned. Between batches all tanks are thoroughly disinfected.
3. Larger ponds can have water which is more turbid (Fig. 5).

Fig. 4. Juveniles in small tanks

Fig. 5. Large tank soon after feeding

Accounts by farm staff, backed up by my observations suggested that turbidity in larger tanks is very much affected by two key factors:

- a. Immediately following feeding a great deal of particulate matter becomes suspended in the water column. This very much reduces between feeds, especially overnight.
- b. On a weekly basis or when water quality declines for any reason, all large tanks are drained of the majority of water and refilled.

Additionally, Mr. Joe Parsons, Research Manager, reported that understocking and the resultant inefficiency in feed utilisation leads to an algal buildup on the bottom and sides of the tanks as well as the turtles themselves. He thought that if this was left unchecked that could contribute to the promotion of skin lesions and other diseases. This is why so much attention is paid to water throughput and is one of the factors which drives the stocking densities chosen in the farm. In tanks for hatchlings and quarantine where animals are at lower densities, daily drainage and weekly scrubbing of individual turtles is undertaken; a very labour intensive process.

D.2 Stocking densities

In turtles of less than a year, the stocking densities used are visually assessed by managers based on the relative surface area coverage. This is driven by the fundamental fact that small turtles do not use the tank in three dimensions (ie they only swim at the surface) and is why tanks for hatchlings and the youngest turtles are relatively shallow. As hatchlings grow, groups are split into multiple small tanks until being moved to larger, deeper tanks.

Once turtles are moved into the larger tanks stocking density is carefully monitored on a wt/volume basis with lb.gallon⁻¹ being used as the unit. Statistics are generated for each month to allow optimal stocking and adequate feeding levels to be maintained. Turtles are weighed at each transfer, typically annually, and weight gain is modelled based on growth rates generated using data gathered over several years. A selection of these data for the end of August 2002 are shown in table 1 (below). Using yearlings, ponds are stocked with similarly sized turtles to make up a density of the order of 0.5 lb.gallon⁻¹ and these are then destocked before they reach 2.0 lb.gallon⁻¹. Groups are split into subsequent tanks at lower densities of 0.5-1.0 lb.gallon⁻¹ with the splitting process being repeated 2-3 times until slaughter.

Group	Tank No	Close Stock	Average Wt (lb)	Total Wt (lb)	Density (lb.gallon ⁻¹)
12 M	46	649	6.0	3 894	0.3
24 M	3	422	23.9	10 086	0.9
36 M	45	994	44.6	44 332	1.4
48 M	38	664	58.5	38 844	1.3
60 M	42	584	52.6	30 716	1.0
72 M	7	252	61.3	15 456	0.5
84 M	51	450	94.5	42 525	1.3
Breeders (F)	39	104	282	29 338	0.9
Breeders (M)	40	105	138	14 520	1.3

Table 1: Stocking densities of selected tanks as per CTF end of August 2002 statistics.(Group: gives ages in months (M); Close Stock: number of individuals in tank)

It can be seen that the density typically varies from 0.3 to 1.4 lb.gallon⁻¹ with between 104 and 994 individuals per tank. This is a very intensive rearing system with densities which exceed some salmon farms (Willoughby 1999). However, low mortality is experienced after 18months of age (see below) despite the fact that stocking density is generally higher for turtles >24M. In addition, although anecdotal it would appear from my preliminary observations that the presence of skin lesions is not primarily driven by stocking density.

I feel that feeding practices, with feed being tipped along the inside of the wall of the larger tanks (usually less than 90 degrees in my experience) may contribute to the impression by some farm visitors that stocking densities are higher than they actually are. CTF turtles are highly conditioned to see the presence of humans as signalling feeding. When feeding time approaches, large numbers of turtles crowd towards passing visitors and/or CTF staff giving the false impression of very high stocking densities (Fig. 6). However a short while after feeding, normal activity and a levelling of density within the tank occurs (Fig. 7). It is notable that The former tank has a stocking density less than that of the latter (1.0 versus 1.4 lb.gallon⁻¹)

Fig. 6. Tank 4 immediately before feeding showing typical crowding.

Fig. 7. Tank 40 after feeding showing redistribution of turtles throughout tank.

There are a number of other factors that should be considered in relation to this feeding practice:

1. There may be wastage of feed (this is unassessed)
2. The contact may contribute to skin lesions (this is unassessed)
3. There is a chance that the uneven distribution of feed may mean that there is a disparity in growth rates. Mr. Parsons informed me that although there is some variation in weight gain among individuals that this is not marked. This is probably because the movement of turtles in the tank usually causes the floating feed to evert into the centre of the tank (Fig. 8) and the fact that although the turtles are not fed ad lib they are fed a generous ration so that all turtles obtain sufficient feed.

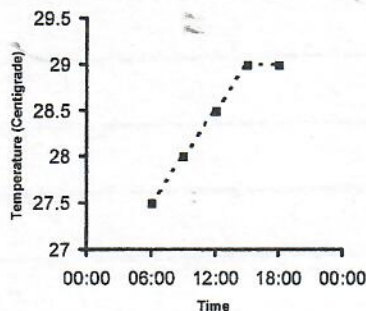
Fig. 8. Feeding in centre of a tank

A recommendation of this report will be that CTF investigates improved methods of feeding which may help minimise the three potential problems listed above.

D.3 Thermoregulation

The farm has a wide range of tank sizes. Although the tanks are generally painted in light coloured (low thermal absorbance) paint, the majority are shallow <2m in depth and not shaded. Thus, there is very little capacity for animals to thermoregulate. However, I feel this is unlikely to be a welfare concern:

a) I monitored water temperature using a mercury thermometer sporadically throughout my stay and in detail on Tuesday 3rd September (a very sunny day) where I measured the temperature in one of the smallest and largest sized tanks every three hours from 06:00 until 18:00, a period which is likely to encompass most of the diel thermal range and definitely likely to record the maximum temperature. At no time did I record a temperatures lower than 27°C and higher than 29.5°C, including the day of more detailed monitoring. On the day there was no demonstrable difference in the temperature experienced in the two tanks. The temperature profile is shown below in Fig. 9.



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Fig. 9. Thermal Profile of water in CTF Tanks on 3rd September 2002.

It might be of concern that turtles are spending much of their time in such warm water. From studies carried out by my colleagues and I at the University of Wales (Hays et al 2002) we have shown that adult females during the interesting interval at Cyprus and Ascension experience high sea temperatures. In Cyprus, these are habitats where juvenile turtles are also found (Fig. 10). Its should be further noted that the females in the study are likely to be foraging and/or resting on the sea bottom thus experiencing the coolest temperatures available in the habitat. Animals such as growing juveniles in shallower water in the same habitats are likely to experience higher temperatures.

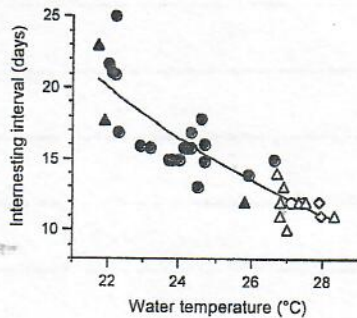


Fig. 10. Mean water temperature and the interesting interval of marine turtles (from Hays et al 2002 figure 1). Symbols represent green turtles at Cyprus (open triangles), green turtles at Ascension Island (open diamonds), Loggerhead turtles at Cyprus (open circles) .

Despite the ectothermy of marine turtles (Spotila et al 1997, Hoschscheid et al 2002), the body temperature may be further elevated by insolation in direct sunlight , especially in the absence of any shade. Indeed, an enduring impression that any visitor to CTF on a sunny day leaves with is the prevailing heat experienced. Although I did not measure turtle body temperature, ethological evidence suggests that turtles are not heat stressed. In the larger tanks turtles do not aggregate in the shade of the tank wall. In the one very sparsely populated "turtle touch" tank where shade is provided by a nearby tree. Although a few turtles can be found aggregating in the shade the vast majority of turtles are found elsewhere in the tank. Figs 11 and 12 illustrate this situation in the heat of midday.

Fig. 11. Turtles in shade

Fig. 12. Turtles in open of same tank at same time as Fig. 11

D.4 Treatment and prevention of disease and injury

The Role of Farm Staff

All CTF staff involved with day to day husbandry on the farm appeared interested and knowledgeable about the turtles and the management system. They appreciated that their role was not simply to feed the turtles but also to ensure their environment was suitable as well as monitoring for mortality and disease. Indeed, as part of the regular feeding schedule (3 times daily) a period is spent observing each tank for ailing or dead turtles. Turtles which are obviously ill or have severe skin lesions are removed to quarantine facilities for treatment (Fig 13).

Fig. 13. Mr Parsons giving antibiotic injection to injured adult female in quarantine tank. Tank is drained for treatment and then cleaning

The Role of the Farm Veterinarian

The CTF has traditionally relied on veterinary expertise from outwith the Cayman Islands, with only emergency help being provided on-Island. However, CTF has recently deepened its relationship with the Cayman Islands Department of Agriculture, Veterinary Division and Dr. Mark Trotman DVM has recently been appointed as named Veterinary Officer for the CTF. Although Dr. Trotman has extensive experience with companion, production and exotic species, CTF has identified his continuing professional development as a priority and he and Mr. Parsons will be attending an upcoming turtle rehabilitation workshop in Florida as well as sourcing the most up to date veterinary literature on disease and treatment of marine turtles.

Dr. Trotman will be involved in three spheres:

1. On-call cover for emergencies such as disease outbreaks or injuries. His veterinary truck is very well stocked (Fig. 14).
2. A source of specialist advice regarding pathology, epidemiology and disease control.
3. Routine visits will be undertaken on a monthly basis that will allow an external objective view to be given regarding the stock and facilities as well as the provision of on-the-spot advice.

The Role of Outside Specialists

This is undoubtedly the area where the CTF have excelled in the past and it is through these liaisons that they have managed to progress sea turtle culture to its current level. However, herd health could still be improved and it will be recommended that neonatal mortality, LET disease and skin conditions are subject of more detailed research which will involve the increased involvement of professionals outwith Cayman Islands

Injuries Present

Although a number of animals were injured as a result of being washed clear of their tanks in Hurricane Michelle, animals are rarely injured as part of routine handling. Young animals are deftly handled by farm personnel whereas a system using a small crane suspending a cage with an open and closing side is used to raise, move and lower adults and large juveniles. This has become a tried and tested technique and is carried out without injury to turtle or stockmen. (Fig. 15)

Fig. 14. Dr. Trotman and his Vet truck

Fig. 15. Lifting procedure for large turtles

Diseases Present

The current CITES proposal contains a discussion of the main diseases/syndromes encountered by the farm that have been described:

- Grey Patch Disease
- Floppy Flipper Disease
- Skin Lesions
- LET Disease
- Fibropapilloma

However, only two of these are significant current conditions and I discount Grey Patch Disease, Floppy Flipper Disease and Fibropapilloma from this discussion. For the other two conditions I preface with the relevant italicised quote from current CITES application.

Skin Lesions

Current CITES application: *Inappropriately high stocking densities often result in excessive skin abrasions, particularly on the neck and shoulders. These lesions are caused by turtles biting and scratching each other and from contact with the sides of the tank. Such situations are commonly found under commercial conditions. The health of any animal raised in captivity has to be carefully monitored and the individuals moved to quarantine if health problems develop. Commercial rearing of sea turtles is no different than that of commonly accepted food animals. Lesions that occur may become subject to bacterial and fungal infection. The infections are non-morbid and heal normally, leaving scar tissue that may be visually disturbing to visitors.*

As has been found in other turtle farming operations (Glazebrook and Campbell 1990), skin lesions are one of the most common disease manifestations. They vary greatly in severity and most are relatively minor. There are rare necrotic lesions of the trailing edge of the hindflipper which may be the result of aggression or contact with substratum (Fig 16). More common sites are at the neck (Fig 17) and axillary region (Fig 18) which upon may be of primarily infective or traumatic aetiology.

Fig. 17. Lesion of hind flipper on a turtle removed for quarantine and treatment

Fig. 18. Severe case of neck lesion on a turtle removed for quarantine and treatment

Fig. 19. Typical lesion in axillary region

Although it is not thought to be a direct source of mortality, chronic skin lesions on the neck and shoulder are undoubtedly one of the major disease conditions present on the farm. The incidence is variable and in a selection of tanks I visually examined 20 individuals for the presence of lesions (see table 2).

Tank No	Age of stock	Proportion with ANY lesions
46	12 months	40%
FGT 2	24 months	25%
38	48 months	45%
39	Breeders	25%

Table 2. Proportion of turtles in four sample tanks which demonstrated any type of skin lesion

In interpreting these data, a number of caveats must be borne in mind:

1. That this was a visual inspection of the first 20 turtles observed and the fact that turtles were observed at the surface and moving around and not resting on the bottom of the tank may profoundly skew results.
2. As stated above, two of the lesions illustrated above are among the most severe present. Many lesions are so small and indistinct as to make photography difficult.
3. The proportions given do not take into account any level of severity of individual lesions. There is a great variation in severity (criteria that could be used including: area, depth, level of inflammation, degree of chronicity, level of healing). Many lesions look sufficiently small, chronic and healing so that they are unlikely, in my opinion to be causing welfare concern and for those with severe lesions, Farm personnel capture, remove animals and then quarantine, treat and/or subject them to euthanasia.
4. No animals with skin lesions appeared listless, inappetant or underweight. Indeed animals with severe manifestations are treated although they continue to gain weight throughout the course of the condition.
5. In none of the turtles that I examined were skin lesions as severe as are regularly seen in wild females (nuptual scars) and males (as a result of intra-sexual agonism) during the breeding season.

However, given the apparent prevalence of the condition/group of conditions it is one of my key recommendations that skin lesions be targeted along with neonatal mortality and LET as priorities for research which will be geared at describing, understanding and controlling these disease entities.

Whilst calling for additional research and control of this condition/group of conditions it is worth outlining what has been accomplished to date:

1. Stocking densities and water quality are kept at what is perceived as an optimum to keep the incidence low, severity low and duration of condition short.
2. Unsuccessful attempts have been made to develop autogenous vaccines.
3. Ongoing monitoring, isolation and treatment or humane euthanasia of severely affected individuals is undertaken.

LET Disease (Lung Ear and Trachea Disease)

Current CITES application: *The most active and potentially serious disease continuing to occur on the Farm is LET disease, so named as an abbreviation for lung, ear and throat. Epidemics of LET disease appear in most age groups from six months to three year of age. Although some animals recover from the disease, in the majority of cases the disease is fatal. Attempts, in association with the University of Florida, to identify, treat and control this disease have focused on intensive parasitological, histopathological, virological and microbiological survey, and have to date, proven unsuccessful.*

This is thought to be the single most significant source of mortality in the herd. Farm workers are constantly vigilant for outbreaks when animals in affected batches are quarantined and are treated as a group with medicated foodstuff. Occasional prophylactic

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treatment is given to young animals in the face of an epidemic. Not all animals die from the condition and some recover completely whilst others recover with partially consolidated lung/lungs and may float unevenly. Within the CTF they are termed "floaters" (Fig. 20). These animals are kept in separate quarantine tanks per year group and either enter the production system or are subject to euthanasia.

Fig. 20. "Floater" Turtle

NB although not clearly delineated into specific disease conditions, a large proportion of neonatal and young juvenile mortality is not caused by LET Disease. This mortality is discussed below.

D.5 Levels and causes of mortality

The mortality rates of F₁ captive-bred animals are outlined in the current CITES application. Whilst at the farm I was granted free access to spreadsheets which record each mortality event on a daily basis for each tank. Data are grouped into: the first 18 months (42.6%), 18-30 months (13.0%), 30-42 months (4.1%) with annual mortality rates being very low to negligible beyond 3 years old. The mortality rates of older individuals are commendable and are suggestive that most management conditions are well suited to the older individuals. The magnitude and relative patterns of mortality are similar to that recorded on crocodile farms in Zimbabwe 1980-83 (Foggin 1987) and in the early days of the UK broiler industry (Sainsbury 1999).

However, 42.6% for those less than 18 months and to a lesser extent 13% for 18-30 months are levels of mortality which are high for any agricultural system and it is recommended that all possible efforts are made to lower them. Given the number of breeders lost during Hurricane Michelle, egg production will start at a lower level than previously. This will give more space and considerable economic incentive to increasing survivorship in subsequent cohorts. Reducing mortality in young animals is my first and most important recommendation of this report.

D.6 Quarantine practice

The whole farm works under a quasi-quarantine system with animals being batched as much as possible by founder clutch whilst hatchlings are then kept together as much as possible by year group (and by size within year groups) as they move through the system.

Two specific conditions involve more rigorous quarantine measures:

- 1) When a group of young animals has a disease outbreak it is quarantined as much as possible for treatment purposes and to confine outbreak.
- 2) If individual or small groups of larger animals suffer from a condition they are moved to smaller fibreglass tanks where they can be closely monitored and subject to therapeutic treatment (Fig. 13 above).

However, as a result of accommodation lost during Hurricane Michelle, some quarantine accommodation has been lost to routine stocking. It is recommended that even more quarantine capacity is designed into the redevelopment of the CTF than was present previously and maximum consideration be given to the design and relative spacing from each other and other parts of the herd so as to maximise the likely benefits derived from the quarantine process. Given the likely infective aetiology of many of the causes of juvenile mortality it is suggested that increased use of quarantine may prove central to disease control in young animals.

D.7 Slaughtering methods and practice.

Current CITES application: *Marketing projections and monitoring consumption patterns of the recipient local retailers determine the number of turtles slaughtered each day. The slaughtering facilities are located near the grow-out tanks. Animals selected for slaughter are removed from the grow-out tanks and placed, overnight, into a holding tank associated with the slaughter facility, thereby minimising transport distance (and time) and any associated stress. Turtles are killed humanely using a captive bolt pistol held against the cranium. Following death, the throat is severed to bleed the animal. Carcasses are processed on a stainless steel bench, where different cuts are packed into plastic bags.*

I witnessed the slaughter of eight turtles on Tuesday 3rd September. Animals had been placed in overnight holding tank beside the slaughterhouse the night before (Fig. 21) as detailed above. One by one they were removed and placed in the stocks (Fig. 22) by one slaughterman whilst a second stood by with the loaded captive bolt pistol (Model Cash Special, Accles and Shelvoke Ltd, Birmingham UK; Fig. 23) ready to shoot the turtle. Turtles were dispatched using a single shot to the cranium centred in the large central scale on the dorsal surface of the head. The four inch bolt appeared to render death instantaneously with involuntary movements persisting for less than 10 seconds in all cases. A third slaughterman immediately severed the spinal cord and all major vessels in the cervical region allowing thorough exsanguination before butchery.

Fig. 21. Overnight holding pond

Fig. 22. Slaughterhouse stocks.

Although the bolt pistols did not look very new, I was informed that the housing quickly oxidised in the moist salty environment and that the following steps were taken to ensure adequate working standards:

1. Three functioning guns were maintained
2. Maintenance was undertaken by the Farm's Operations Manager, Mr. Chris Jackson who is part of the Cayman National Pistol Shooting Team, and well experienced at firearm maintenance.
3. Full spares are kept with all internal working parts being replaced every ca. 6 months (Fig. 24)

Fig. 23. Captive bolt gun.

Fig. 24. Bolt gun spares.

E. Comparing Standards with Those Required by UK Legislation

As part of the initial briefing I was asked to compare standards to those expected for an intensive livestock production facility in the UK. Examples of legislation given were:

E.1. The Welfare of Farmed Animals (England) Regulations 2000 (SI 2000 No. 1870, www.hmso.gov.uk/si/si2000/20001870.htm)

E.2. The Welfare of Animals (Slaughter or Killing) Regulations 1995 (SI 1995 No. 731, www.hmso.gov.uk/si/si1995/Uksi_19950731_en_1.htm).

Additional comment is given with respect to:

E.3. Welfare Codes

These standards are generally aimed at birds and mammals although E.1. does cover fish, amphibians and reptiles to a lesser extent.

E.1 The Welfare of Farmed Animals (England) Regulations 2000 (SI 2000 No. 1870)

When comparing to the standards of practice as would be expected in the UK as outlined The Welfare of Farmed Animals (England) Regulations 2000 (SI 2000 No. 1870, www.hmso.gov.uk/si/si2000/20001870.htm) I find the state of affairs at the Cayman Turtle Farm to be acceptable.

This includes:

Duties on owners and keepers of animals Which stipulates that ..

"Owners and keepers of animals shall take all reasonable steps -

(a) to ensure the welfare of the animals under their care; and

(b) to ensure that the animals are not caused any unnecessary pain, suffering or injury."

In addition, although the legislation does not actually cover reptiles:

"Owners and keepers of animals (other than fish, reptiles and amphibians) shall take all reasonable steps to ensure that the conditions under which the animals are bred or kept comply with the requirements set out in Schedule 1."

Although, an academic exercise it is worth investigating how CTF would compare under Schedule 1 (General conditions under which farmed animals must be kept) should it include reptiles.

The process by which standards and conditions are set is outlined:

"In deciding whether the conditions under which animals are being bred or kept comply with the requirements set out in Schedule 1, the owner and keeper of the animals shall have regard to their species, and to their degree of development, adaptation and domestication, and to their physiological and ethological needs in accordance with established experience and scientific knowledge."

There are no welfare codes for farmed green turtles but as part of the standard operating manual of the farm, standards and processes are already in place.

In my opinion, the management and husbandry system at the CTF is compatible with all the following pertinent sections of schedule 1:

- Staffing
- Inspection
- Record keeping
- Freedom of movement
- Buildings and accommodation
- Automatic or mechanical equipment
- Feed, water and other substances
- Breeding procedures

E3. Welfare Codes

There are no welfare codes for green turtles but as part of the standard operating manual of the farm, standards and processes are already in place regarding standards of:

environmental conditions including stocking densities.

mortality levels for each year group.

morbidity levels for key clinical conditions.

quarantine protocols.

handling/ slaughter methodology.

As the methodology of the farm progresses, these will form vital benchmarks for any future turtle farming ventures.

E.2 The Welfare of Animals (Slaughter or Killing) Regulations 1995 (SI 1995 No. 731)

When comparing to the standards of practice as would be expected in the UK as outlined in The Welfare of Animals (Slaughter or Killing) Regulations 1995 (SI 1995 No. 731 http://www.hmso.gov.uk/si/si1995/Uksi_19950731_en_1.htm). I find the state of affairs at the farm to be highly commendable:

PART I: INTRODUCTORY

Although slaughtermen are not licenced as outlined in Schedule 1, they are obviously highly skilled and proficient. I witnessed no contraventions of sections as regards:

- "Humane treatment of animals"
- "Safeguarding the welfare of animals"

As regards, "Animal welfare legislation and codes" there are none pertaining to marine turtles but all slaughtermen and stockmen are aware of required standards of care on the farm.

PART II: REQUIREMENTS APPLICABLE TO SLAUGHTERHOUSES AND KNACKERS' YARDS

If this legislation would be applied to CTF, I saw no contravention of any of the following pertinent schedules:

- SCHEDULE 2 THE CONSTRUCTION, EQUIPMENT AND MAINTENANCE OF SLAUGHTERHOUSES AND KNACKERS' YARDS
- SCHEDULE 3 REQUIREMENTS FOR ANIMALS AWAITING SLAUGHTER OR KILLING
- SCHEDULE 4 RESTRAINT OF ANIMALS BEFORE STUNNING, SLAUGHTER OR KILLING
- SCHEDULE 5 STUNNING OR KILLING OF ANIMALS OTHER THAN ANIMALS REARED FOR FUR
- SCHEDULE 6 BLEEDING OR PITHING OF ANIMALS

G) ACKNOWLEDGEMENTS:

I would like to thank the staff at CTF for their candid and helpful approach to the undertaking of this inspection: Ken Hydes, Joe Parsons and Chris Jackson provided a great deal information. The Farm's Veterinarian, Dr. Mark Trotman DVM contributed significantly to discussions. Additionally, a number of colleagues generously provided literature and advice (some at very short notice) which has been key in the writing of the report (not all cited): Ruth Elsey, Matthew Godfrey, James Kirkwood, Val Lance, Charlie Manolis, Perran Ross, Roldan Valverde and Grahame Webb.

H) LITERATURE CITED

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F. Recommendations

I was asked to recommend reasonable steps by which animal husbandry and care might be improved at the farm. A great deal of research has been undertaken for more than 30 years on the farm which has spearheaded the development of marine turtle culture. Undoubtedly there is more that could be done in the future which might help the science of turtle farming be refined:

Four key areas would appear to be:

1. More research should be undertaken into the aetiology, epidemiology and control of all diseases/conditions that lead to mortality in farm-bred marine turtles in the first 30 months of their life.

2. Efforts should be made to more fully monitor, understand and control the two major groups of clinical entities:

a) Skin Lesions

b) LET

3. As part of the remodelling of the farm that maximum consideration is given to increase in quarantine facilities available and their design and relative spacing from each other and other parts of the herd so as to maximise the likely benefits derived from the quarantine process.

4. Improvement of feeding strategies to minimise within group competition which may lead to unsightly aggregation before and during the feeding process. In addition current competition may play a role in disparity of growth rates within a batch and the crowding may contribute to the generation and maintenance of skin lesions.

13
A) TERMS OF REFERENCE (Received from Martin Brasher 9th August 2002)

INSPECTION OF CAYMAN TURTLE FARM GRAND CAYMAN

To conduct an inspection of the Cayman Turtle farm on behalf of the Government of the United Kingdom of Great Britain and Northern Ireland in order to:

- determine whether standards of care meet those required by Resolution Conf. 11.14, that the operation is conducted in a "humane (i.e. non-cruel) manner";
- examine, in particular, standards of husbandry and care including attention to issues such as:
 - water quality;
 - stocking densities;
 - the ability of animals to thermoregulate;
 - treatment and prevention of disease and injury;
 - levels and causes of mortality;
 - quarantine practice; and
 - slaughtering methods and practice.
- suggest any reasonable steps by which animal husbandry and care might be improved at the farm.

To provide a full report on the above to:

The Department for Environment, Food and Rural Affairs (DEFRA)
Global Wildlife Division
CITES Policy Branch (GWD1)
Zone 1/16, Temple Quay House
2 The Square
Temple Quay
BRISTOL BS1 6EB

By 15 September 2002

It should be further noted that as per the letter of instruction from Mr Brasher, "the inspection should be made on the basis of the standards of practice that would apply to a comparable intensive livestock production facility in the UK." The examples of legislation given were:

The Welfare of Farmed Animals (England) Regulations 2000 (SI 2000 No. 1870, www.hmso.gov.uk/si/si2000/20001870.htm)

The Welfare of Animals (Slaughter or Killing) Regulations 1995 (SI 1995 No. 731, www.hmso.gov.uk/si/si1995/Uksi_19950731_en_1.htm).

1. The need for continued efforts to be made towards research and development which would increase the understanding of, and lead to the reduction in mortality in, turtles <30 months old.
2. The need for efforts to be made to more fully monitor, understand and control the two major groups of clinical disease entities encountered on the farm:
 - a) Chronic skin conditions
 - b) Lung, Ear and Trachea disease (LET)
3. The need for consideration to be given to increasing the number of quarantine facilities available as part of the remodelling of the farm.
4. Improvement of feeding strategies.

Brendan Godley BSc BVMS PhD
15th September 2002

Member Royal College of Veterinary Surgeons
Member of IUCN ~~Veterinary Specialist Group~~
Member of IUCN Marine Turtle Specialist Group



CAYMAN TURTLE FARM
ISLAND WILDLIFE ENCOUNTER

FOR IMMEDIATE RELEASE

Cayman Turtle Farm releases 150 turtles into the wild
Rescheduled 32nd Annual Pirates Week Turtle Release a success

Monday, 19th November 2012... Hundreds of Cayman visitors and residents turned out as the Cayman Turtle Farm: Island Wildlife Encounter released 150 turtles into the wild this past weekend in its 32nd Annual Pirates Week Turtle Release.

The event, originally scheduled to take place on Sunday, 11th November had been postponed due to rough seas and conditions which would have been inhospitable for the young turtles.

Organised in conjunction with the Pirate's Week Committee, the annually anticipated release took place on the shores of the North Sound, directly across from the North Sound Golf Club on Sunday, 18th November at 4pm and saw children and adults clamouring for the chance to release one of the turtles into the sea.

This year's event featured a significantly higher number of turtles being released than in recent years, largely due to a highly successful nesting season – which saw a record number of eggs laid and an increased hatching rate.

Leading up to the event, guests to the Cayman Turtle Farm and the Pirates Week Office had the chance to enter a raffle to win a spot to release one of 20 turtles, with the remaining turtles being released by lucky spectators chosen on the day itself.

The Cayman Turtle Farm's release programme, is an important aspect of the organisation's conservation mandate and has placed over thirty-one thousand green sea turtles into the wild since 1980. The annual event has grown over the years to become one of the most popular features of the Pirates Week calendar.

"Our release programme is dear to our hearts and a central component of our conservation activities as we continue to preserve the Green Sea Turtle population," said Cayman Turtle Farm Managing Director

PR: 32nd Annual PW Turtle Release – Post Event
Monday, November 19, 2012

The Editorial in question can be found at:

<http://www.ievenews.com/2012/11/the-editor-speaks-wspa-still-insist-ctf-end-sea-turtle-farming/>

Ms. Alcock's reply is: "Many thanks for your email, and for the two pieces on our campaign and the CTF. I felt from your email and from the content of your editorial that there were several points raised which I could follow up on. So what I have done is pulled together some of your questions and created the attached question and answer document. I hope that you are able to use this in some way?"

Question – Was WSPA justified in suspecting that more than one turtle was injured?

We are glad you that you also noticed the turtle with damage to its flipper. At a time when the Farm is under international scrutiny, WSPA was surprised to find such clear evidence of injury amongst the turtles being released. As you will know, this occurred despite the Farm claiming in a public announcement that; 'as part of the release programme, turtles are quarantined and reviewed for any disease or defect before release'. It is worrying to think that at this time, when the Farm are trying to justify their conservation efforts, this injured turtle has slipped through the net.

Whilst it is not possible to conclusively identify the type of defect or disease without a closer examination of the turtle, what it does show is that the procedures put in place by the CTF failed. And if this one turtle exposed to public scrutiny at this release had a defect, what condition were the ones in at previous releases?

The CTF has not yet been able to demonstrate that their quarantine procures are adequate, and that they are releasing turtles into the wild which pose absolutely no threat to the wild turtle population. The commercial method of farming practiced at the facility significantly increases the incidence rate of diseases including ⁽¹⁾ chlamydia, ⁽²⁾ grey patch disease, ⁽³⁾ fibropapillomatosis and ⁽⁴⁾ lung-eye-trachea disease.

Much of the scientific research conducted at the CTF actually looks at the level and type of diseases found at the Farm, for example the authors of this research paper:

* http://www.boatswainsbeach.ky/_media/documents/scientific_herpesvirus.pdf studied turtles at the CTF, with particular focus on the spread of grey patch disease. This illness is a herpes type disease which results in skin lesions, and is thought to be found in turtles which live in stressful environmental conditions such as overcrowded tanks. The study looked at turtles which were under one year old (so a similar age to those being released) and which currently had grey patch disease. The scientists then artificially infected turtles without grey patch, via skin lesions, to show that the disease could be spread from turtle to turtle. The results showed that all turtles which were exposed to the grey patch disease developed the illness. Recovery?

This study demonstrates that not only is grey patch illness present at the Farm, but that this is an illness which can be easily transmitted. The authors estimate that 2 to 25% of animals with grey-patch disease die, depending upon the conditions under which they are maintained. recovery?

Whilst the CTF may have examined the turtles for physical signs of illness (although they missed the turtle with the damaged flipper) it is possible that some of the green turtles released by the Cayman Turtle Farm are carriers of these sorts of harmful diseases but have yet to develop any observable symptoms. Some of these illnesses can remain dormant within the turtles and will only manifest when the animal is put under stress – stress which could be triggered by being handled when released for example.

domesticated, sea turtles never have. The domestication process involves adaptation to captive conditions, over a number of generations. So for example cows have been domesticated for a period of at least 5000 years and already possessed particular pre-adaptive traits that lent themselves to human-environment sharing. The small number of animals that have been domesticated is not a random selection: these animals were domesticated because they had suitable characteristics, characteristics which turtles do not have.

Even turtles that have been bred in captivity have strong drives to behaviours that the Farm's intensive breeding conditions do not permit. In the wild, sea turtles are solitary creatures that swim long distances and dive to great depths. They are not able to adapt to the artificial environment of the farm or to interaction with humans. Continuing to captive breed turtles for a few more generations would by no means be enough time to domesticate the species.

With regards to similarities between farming fish and turtles, WSPA emphasises that much more attention should be given to the welfare of fish, particularly because of the very fact that they are not domesticated. For example, salmon (the main species farmed in the UK) are not only undomesticated but also have two major features that are problematic for captivity – they are carnivorous and migratory, and the conditions in which they are kept do not take account of those features. Furthermore, most fish are kept in very large groups in barren conditions, which prevents care for, or even monitoring of, individuals.

We do also oppose the farming of new species (including fish species), for the reasons concerning domestication as detailed above.

Question – Is WSPA attacking a cultural tradition?

Farming of sea turtles is not a historical Caymanian cultural tradition, but was developed to meet the demand for legal turtle meat after the hunting of wild turtles was made illegal in the early 80s.

WSPA spent considerable time interviewing Caymanian people to develop a deeper understanding of the problem and the cultural importance of turtles is clear. However, our investigation shows that the Cayman Turtle Farm is not an appropriate solution to this conflict as it is failing in its conservation efforts.

Information obtained from the Cayman Turtle Farm shows that in the last five years there has been a clear decrease in the amount of turtles sold for meat. In 2007 1632 turtles were sold for meat, whereas this number had fallen to 762 in 2011.

It is worth also contrasting the number of turtles sold for meat against the amount of money being paid by the Caymanian Government in order for the Farm to continue to operate. The Farm has been making an average loss of well over nine million Cayman dollars a year over the past five years, only surviving so far thanks to extensive government subsidies. Is this a price worth paying in order to for a small proportion of the population to consume turtle meat?

WSPA firmly believes that this money would be far better spent on developing an effective release and rehabilitation centre for sea turtles, and to employ appropriate and effective measures to protect the wild turtle population.

We have created a way for anyone who has concerns or questions surrounding this campaign to contact us directly. We would encourage your readers to email us at turtles@wspa-international.org as we would welcome

Tim Adam. "This is a very important event for us, as we are releasing a larger number of turtles than we have in several years."

"Standing here at the seaside, releasing a fresh group, is the ultimate expression of the Cayman Turtle Farm's conservation mission," Mr. Adam said. "As these baby turtles cross the sand, enter the water and start new lives in the sea – it is an awesome moment that gives us hope for the future. Hope that the wild population will continue to grow and flourish with our help. With releases such as this one, the Cayman Turtle Farm is boosting native stocks and helping to rebuild a wildlife population that in the past had become almost completely depleted."

This year's release included yearlings and advanced hatchlings. The yearlings were fitted with Passive Integrated Transponders (PIT tags) which are micro transponders encased in a glass case about the size of a large grain of rice. These electronic tags are injected under the skin and can only be detected with a scanner (similar to wand scanners used at the grocery store).

These and other types of tags allow researchers around the world to identify individual animals and better understand migration and nesting patterns. The most recent observational data shows that at least 14 females tagged and released from the Cayman Turtle Farm in the 1980s, have returned to lay their own eggs on Cayman beaches.

Historically, the Cayman Islands boasted one of the largest green sea turtle populations in the Caribbean and possibly the world. Indeed there were so many turtles that upon discovery of the Islands in 1503 Christopher Columbus named them 'Las Tortugas'. However, from as early as the Seventeenth Century, this natural resource had become commercially extinct and by 1900, the International Union for the Conservation of Nature (IUCN) had deemed this population to be extinct in the Cayman Islands.

Today, according to the Department of Environment, there are less than thirty adult female green sea turtles nesting in the Cayman Islands each year. To this end, one objective of the Cayman Turtle Farm's release programme is to help replenish the local population of reproducing green sea turtles.

As part of the release programme, turtles are quarantined and reviewed for any disease or defect before release. Yearlings also take part in a process known as "headstarting" which prepares them for life in their natural habitat by replicating conditions in the wild prior to their release.

Recent studies by the Cayman Turtle Farm of satellite-tagged released turtles show them adapting well to their new habitat and roaming widely throughout the Caribbean region.

Since Hurricane Michelle decimated the Cayman Turtle Farm's breeding stock in 2001, the Farm has been working to grow its turtle population and is now reaching the point where increased numbers of turtles can be released into the wild each year.

People who couldn't be at Sunday's event in person can join the "virtual" turtle release event on the Cayman Turtle Farm's Research and Conservation Facebook page to view photos and video of the event.

To take part in future turtle releases or to find out more about sponsorship opportunities call the Cayman Turtle Farm: Island Wildlife Encounter on 949-3894, send an e-mail to sponsorship@turtle.ky or visit www.turtle.ky

(ENDS)

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PR: 32nd Annual PW Turtle Release – Post Event
Monday, November 19, 2012

FOR IMMEDIATE RELEASE

Contact: Rocio Johnson
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Sea Turtle Conservancy Joins Effort to Stop Sea Turtle Farming at Cayman Turtle Farm

GAINESVILLE, FLA, Oct. 18, 2012 -- After the recent deaths of an estimated 300 green sea turtles at the Cayman Turtle Farm in the Cayman Islands, Sea Turtle Conservancy has joined the World Society for the Protection of Animals in their campaign to stop sea turtle farming (www.stopseaturtlefarm.org) at the last remaining facility to intensively farm and breed sea turtles for human consumption in the world.

Sea Turtle Conservancy has objected repeatedly to the Cayman Turtle Farm's release of captive-raised turtles into the wild, which have the potential to affect wild populations in the broader Caribbean. The problem with releasing Cayman Farm-raised turtles into the wild is three-fold.

First, well-documented diseases found primarily in captive turtles can be spread to wild populations. Second, the turtles that are breeding at the Cayman Turtle Farm originate from many different oceans and nesting colonies, which means they have very different genetics. If their offspring are allowed to mix with and mate in the wild, it could have far reaching impacts on sea turtle navigation abilities and genetics. And third, the Cayman Farm's turtle release program gives people the false impression that conservation of sea turtles in the wild can be accomplished simply by breeding turtles in tanks and the releasing them.

"The Cayman Turtle Farm tries to promote its operation as something beneficial to wild turtle populations," said David Godfrey, Sea Turtle Conservancy Executive Director. "Despite the lack of evidence that the turtle release program actually benefits the wild population, countless individuals around the world are led to believe that the program works and that it is a successful option for saving and restoring wild sea turtle numbers."

In addition to the Cayman Turtle Farm's detrimental impact to wild populations, a recent undercover investigation by the World Society for the Protection of Animals produced video footage and photographs revealing thousands of sea turtles kept in dirty, over-crowded enclosures conducive for the spread of disease. Sea turtles packed on top of each other are left to swim in their own waste and fight for food—miserable conditions that often result in cannibalism among the turtles. WSPA investigators witnessed numerous turtles with missing flippers, chewed off by other turtles competing for survival in these appalling conditions.

“It’s truly horrific to see this type of neglect and cruelty taking place at a tourist attraction. Life in the Cayman Turtle Farm is a world away from how sea turtles live in the wild,” said Dr. Neil D’Cruze, WSPA Wildlife Campaign Leader.

Highlighting this neglect is the recent death of about 300 green turtles at the Cayman Turtle Farm after a leak of seawater from a pipe. In a statement from the Cayman Turtle Farm to Wildlife Extra, they acknowledged that “in order to repair the pipe break and avoid a worsening flooding situation, the decision was made to cease pumping sea water into the farm through the main pipe system.”

“In essence, once the tank was drained, the turtles were left piled on top of each other to cook to death under the Cayman sunshine,” said Godfrey. “It’s time to turn things around at the Cayman Turtle Farm, and there really is an opportunity to do something positive for sea turtles at this historical site.”

Sea Turtle Conservancy is joining the World Society for the Protection of Animals in publicly asking the Cayman Turtle Farm to permanently end sea turtle farming and encouraging members of the public to take action at www.stopseaturtlefarm.org.

Additional Resources:

[Sea Turtle Conservancy Statement on Cayman Turtle Farm](#)

[World Society for the Protection of Animals Petition](#)

[World Society for the Protection of Animals Investigative Report](#)

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About Sea Turtle Conservancy:

Sea Turtle Conservancy is an international nonprofit and the world’s oldest marine turtle research and conservation organization. Founded in 1959, Sea Turtle Conservancy is dedicated to ensuring the survival of sea turtles through research, education, advocacy and the protection of natural habitats upon which they depend. Learn more at www.conserveturtles.org.

About WSPA

The World Society for the Protection of Animals (WSPA) is one of the world’s leading animal welfare organizations. We have been protecting animals around the world more than 30 years. We passionately believe that animal welfare matters. At WSPA, we will always expose and oppose the exploitation and suffering of animals. We believe animal cruelty must end, whether an animal is living in the wild, on a farm, in our community or affected by a disaster. Today, WSPA works in more than 50 countries, collaborating with local communities, NGOs and governments that can help us change animals’ lives for the better. We also act at a global level, using our United Nations consultative status to give animals a voice. Learn more at www.wspa-international.org.



CAYMAN TURTLE FARM
ISLAND WILDLIFE ENCOUNTER

Press Statement

For Immediate Release

Cayman Turtle Farm responds to Sea Turtle Conservancy criticisms of turtle release programme

Thursday, October 18, 2012..... The Cayman Turtle Farm is today responding to criticisms by the Sea Turtle Conservancy (STC) of the Cayman Islands-based research and conservation centre's decades old turtle release programme, which has released some 31,000 turtles into the wild and is now seeing solid returns as tagged adult females return to Cayman beaches to nest in increasing numbers.

The first criticism by the STC alleges the presence of diseases at the Cayman Turtle Farm and in our released turtles.

The allegation that our turtle releases endanger wild population by potentially spreading disease and genetic abnormalities is at best misleading and at worst untrue.

The STC seems to be relying on assertions made by the World Society for the Protection of Animals (WSPA) in its current campaign against the Cayman Turtle Farm. The studies and data that the WSPA is relying on to make these claims are several decades old. There have been significant strides at the Cayman Turtle Farm since that time to eradicate diseases at the farm that are present in the wild population.

Subsequent to discovering the WSPA's claims against the Cayman Turtle Farm, we invited an international turtle expert to review our entire turtle population. No incidence of the diseases that the WSPA catalogue in their claims against the Cayman Turtle Farm were found at that time.

The STC refers to the genetics of the turtles released, making reference to potential congenital defects. A further incorrect claim by the WSPA campaign centres on the presence of genetic mutations within our turtle herd.

Again, as part of the veterinary review subsequent to the WSPA's claims, there were no turtles found at the Cayman Turtle Farm with the genetic defects alleged. In fact, cases of genetic mutation at the Cayman Turtle Farm are extremely rare, and seem to be in line with the incidence of similar defects in the wild populations. In cases where turtles are found to have congenital defects impacting their quality of life, these turtles are humanely euthanised.

In any case, Cayman Turtle Farm follows rigorous release protocols for all animals to be released into the wild. As part of this process, juvenile Green Sea Turtles are selected for release; health checked and given appropriate preventative treatments; and quarantined for 30 days.

In response to the overall criticism that our release programme is a failed conservation effort giving a false impression of success, we stand by the 150 research papers released over the years, the number of requests we receive each year for educational internships and research partnerships, the ongoing research partnerships we have in place, our release of over 31,000 turtles into the wild, and the collated evidence of increased numbers of turtles returning to the Cayman Islands to nest.

In fact, 2012 has thus far been a record year for turtles nesting on Cayman Islands beaches. It has also been a very positive nesting season for the Cayman Turtle Farm, with over 41,000 eggs being laid at the facility and a higher hatch rate than has been seen in several years.

An upcoming turtle release will see 150 turtles released into the wild on that one occasion alone – thereby continuing our conservation efforts and aims to increase the wild population of Green Sea Turtles.

Through recent satellite-tagged turtle releases, we are also able to capture data on the behaviour of Green sea turtles released into the wild – where they go and what they do, and thus far we have seen that the satellite-tracked turtles we have released into the wild have adapted well to their new habitat.

Research done by the Cayman Islands Department of the Environment has proven that decades after release, once they reach maturity, some of these released turtles return to nest on Grand Cayman's beaches.

The Cayman Turtle Farm tags turtles with a "living tag" which was developed by Professor John Hendrickson and Lupe Hendrickson of the University of Arizona. This tagging method involves the auto grafting of a small, white dot of belly shell onto the turtle's dark coloured back. This is done when the turtle is only a few days old. As the animal grows, the dot grows with it. This tagging method is tremendously significant as it is the only method whereby a tiny sea turtle hatching may be identified as a 300 pound adult more than 15 years later on a nesting beach.

Information thus far correlated suggests that the turtles adapt well to natural conditions when released as yearlings. Significantly, the release programme of the Farm has demonstrated that released turtles do assimilate into a natural environment.

The Cayman Turtle Farm remains committed to the future release of turtles into the wild to maintain and increase the wild population and also to foster and continue ongoing research into the unknowns about sea turtles.

In response to the STC's reference to the WSPA's reports against the Cayman Turtle Farm with regard to the treatment of the turtles in our care, there is no animal cruelty at the Cayman Turtle Farm. Animal husbandry is carried out according to all internationally accepted humane standards. We are trying to conserve these turtles, and increase their numbers. Our efforts are devoted to their well-being and care.

Within the operations at the Cayman Turtle Farm, our primary focus is on operation as a unique, safe and sustainable tourism attraction supporting the research and conservation of sea turtles.

The Cayman Turtle Farm looks forward to directly addressing the WSPA's allegations, and by extension the STC's support of this campaign, with an independent review of our operations scheduled for December 2012.

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CAYMAN TURTLE FARM
ISLAND WILDLIFE ENCOUNTER

For Immediate Release

Press Statement

Cayman Turtle Farm Committed to Sea Turtle Conservation and Welfare
Cayman Islands sea turtle conservation centre responds to attack on its operations by UK-based organisation

Grand Cayman, Cayman Islands – Friday, 12th October, 2012... The Cayman Turtle Farm: Island Wildlife Encounter, an entity in existence for over 40 years dedicated to sea turtle research, reproduction, display and conservation, is today fighting serious and spurious claims made by the World Society for the Protection of Animals (WSPA) against its operations.

In its purported quest to "shut down sea turtle farming," the WSPA is making grave allegations against the world's only sea turtle farming and conservation organisation that has reached the landmark achievement of a second generation of captive-bred sea turtles – the Cayman Turtle Farm.

The Cayman Turtle Farm is taking these allegations very seriously, as the organisation focuses on its mission to be a world-renowned attraction where guests enjoy quality interaction with animals in a safe environment which promotes sea turtle conservation through research and education.

The Cayman Turtle Farm sees this effort to shut down our operations as completely incompatible with the WSPA's claims that the organisation hopes to assist the Cayman Turtle Farm to transition to a model the WSPA finds more acceptable to its aims. That claim is in itself contradictory given that the WSPA has also claimed that sea turtles cannot be humanely held in captivity.

Regarding the claims that the operations at the Cayman Turtle Farm are cruel to the turtles in our care, we found no evidence of the kinds of injuries or defects among the turtles reared at our facility that the WSPA is listing in its assertions against us.

Rather, we have instead succeeded in maintaining the health and well-being of our turtle population through established veterinary treatment protocols and methods

The farming operations at the Cayman Turtle Farm are just one part of our multi-faceted approach to the conservation of these splendid and unique animals. The sea turtle is an integral part of the Cayman Islands' history, and the turtling trade was a staple industry in the development of our Islands. Consumption of turtle meat is part of the country's unique national heritage, and turtle stew is widely regarded as the country's national dish. The practice can be likened to the farming and consumption of bison in other parts of the world.

The catching of sea turtles in the wild is severely restricted by law in Cayman waters, due to the depletion of these animals in the natural environment. The Cayman Turtle Farm is the only legal source of turtle meat in the Cayman Islands, and the sale of this meat is aimed at restricting illegal poaching of sea turtles and thereby protecting the population of wild sea turtles of all the species in our surrounding waters.

The responsible stewardship of the animals in our care at the Cayman Turtle Farm is a responsibility that we take very seriously and our crew works hard and diligently every day to ensure that safe and optimal operating conditions are maintained.

In addition to the safety and well-being of the turtles at our facility, we are also dedicated to the health, safety and enjoyment of the many visitors to the Cayman Turtle Farm each year. The Cayman Turtle Farm is the number-one land-based attraction in the Cayman Islands and receives on average over 200,000 visitors annually: giving them the unique experience of seeing sea turtles of many different ages and sizes. At the Farm they can wade amongst young turtles, and even swim alongside them. In our education centre they can see turtle eggs in the process of hatching, and watch an educational video presentation.

We adhere to all safe turtle handling protocols to ensure that our guests at the Cayman Turtle Farm, who come to interact with sea turtles as a unique and often once-in-a-lifetime experience, are in a completely safe environment. This is done through signage and extensive spoken instructions by our on-site tour guides and lifeguards. All handling protocols at the Cayman Turtle Farm follow the U.S. Centers for Disease Control and Prevention guidelines for the safe handling of reptiles.

One of the clearest indicators of the safety of our operations to our human guests is that in over 40 years of operation, with hundreds of thousands of visitors to our facility every year and numbering in the millions in total – all interacting with the turtles resident here, we have not had one single known case of transmission of illness to our guests or our crew members. This is through literally hundreds of interactions per day – with guests of a range of ages. This impressive record is also supported by the instructions and education we give to our guests on the property regarding the safe handling of turtles – both for the comfort and safety of our guests and also for the welfare of the turtles in our care.

Regarding the Cayman Turtle Farm's research and conservation mandate, the Cayman Turtle Farm has published 150 research papers over the years – research that would not have been



For Immediate Release
12 October, 2012

**Statement by the Cayman Islands Government
Regarding the Cayman Turtle Farm: Island Wildlife Encounter**

The Cayman Islands Government places a high regard on maintaining the health and safety of visitors to our Island and to our tourist attractions and takes the allegations levied against the Cayman Turtle Farm: Island Wildlife Encounter (CTF) by the World Society for the Protection of Animals (WSPA) very seriously.

The CTF is the Islands largest land based tourist attraction, which welcomes more than 200,000 visitors each year and is an iconic aspect of the Cayman Islands tourism product. Like all tourism organisations in the Cayman Islands, the CTF is subject to regular inspections by Government entities, as well as independent external assessors, to ensure that it complies with health and safety regulations and provides a high quality and responsible tourism experience.

Prior to the claims by the WSPA, the Cayman Islands Government has never been confronted with allegations or claims of evidence of animal cruelty, nor has there been any suggestion whatsoever of risks to the health and safety of visitors who enjoy the attraction. In fact, in more than forty years of operating and having welcomed millions of visitors to the facility, there has not been a single reported case of ill health stemming from the farm.

Notwithstanding the preponderance of evidence to the contrary, the allegations by the WSPA are being taken seriously. Consequently, an independent body has been identified to conduct an audit of the farm operations and the welfare of the animals at the CTF in approximately 60 days.

As a society, the Cayman Islands does not condone or tolerate cruelty to, or the inhumane or improper treatment of any animal, particularly the sea turtle, which has been inextricably linked to the history and culture of these Islands for centuries. In addition to being depicted on the Cayman Islands flag and on local currency, its meat has remained an established part of the traditional Cayman Islands diet since the country's discovery over 500 years ago.

The Cayman Turtle Farm was established in 1968 to facilitate the legal, commercial production of green sea turtle and the consumption of farm reared meat.

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By calling for a cessation of commercial farming under the guise of concerns over animal welfare, it appears that the internationally-based WSPA is attempting to alter the culture of the Cayman Islands without understanding the history of this small country or its people. Moreover, their objective clearly disregards the important role the CTF plays in turtle conservation and they appear to be unconcerned about the ramifications that the cessation of commercial farming would have on turtle populations in the wild.

The Cayman Islands government is committed to ensuring that visitors to the CTF are provided with a high quality, enjoyable and responsible animal interaction experience and any proven concerns regarding human health and safety or animal welfare will be swiftly and effectively addressed.

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The Cayman Turtle Farm shares the WSPA's concern for the welfare of the animals in our care, and is committed to ensuring the safety and health of the sea turtles hatched and reared in our research and conservation centre, as well as the safety and health of our guests and our crew members.

These magnificent animals – Green sea turtles (distinct from the critically endangered Leatherback or Kemp's Ridley species) are the centerpiece of our facility and we treat them with the care and respect they deserve. The Cayman Turtle Farm ensures that we follow internationally accepted and humane animal husbandry practices and also follow internationally recognised release protocols when releasing these animals into the wild as part of our conservation mandate.

It should also be noted, that once the WSPA approached the Cayman Turtle Farm with their claims, we immediately initiated a thorough review of our operations, and found no basis for their sensational allegations.

We have also agreed to a fully independent assessment of our operations, which is currently scheduled to take place in December of this year. We are confident that the Cayman Turtle Farm can and will stand up to this scrutiny as a well-run bona fide captive breeding and research centre dedicated to education on, interaction with, and conservation of the Green sea turtle.

The Cayman Turtle Farm, and representatives of the Cayman Islands Government, have in fact met with the WSPA both in the Cayman Islands and in the United Kingdom to discuss and review the group's concerns. It was through this dialogue that the Cayman Turtle Farm agreed to independent examination of the WSPA's claims, and to work with the organisation moving forward to address their concerns.

In all meetings and communications with the WSPA thus far, it has been clearly stated that the decision to alter the business model and objectives of the Cayman Turtle Farm would require a decision by the Cayman Islands Cabinet, and a timeline was agreed and subsequently adjusted by both parties to enable these high-level discussions to take place as an important part of the sequence. However, the WSPA has instead embarked on a smear campaign to coerce the Cayman Turtle Farm to submit to the WSPA's demands despite that fact that their allegations are unfounded, erroneous and sensationalised.

It is also completely erroneous for the WSPA to claim that we are rearing and slaughtering diseased or defective turtles for meat. Any turtles among the population with congenital defects are humanely euthanised. Such defects are very rare and have not been found at rates higher than those expected in the wild population. Also, all meat harvesting is performed under the guidelines of the Cayman Islands Department of Environmental Health as well as internationally-accepted humane harvesting procedures.

possible without our operation being in existence. We are also currently participating in important research on the diet of Green sea turtles, as well as an aging study that will be the first to determine how to accurately calculate the age of live sea turtles. All of this is information sought after by scientists in the field that would not be possible without research on the turtle herd at the Cayman Turtle Farm.

The WSPA makes light of the 31,000 turtles released into the wild over the years – the vast majority of which were released in the past 25 to 30 years. Sea turtles do not reach maturity until they reach between the ages of 25 to 35 years old, so we will only just now begin seeing these turtles return to our shores to nest – which the Cayman Islands Department of Environment has been seeing happen in greater numbers in very recent years.

In fact, 2012 has thus far been a record year for turtles nesting on Cayman Islands beaches. It has also been a very positive nesting season for the Cayman Turtle Farm, with over 41,000 eggs being laid at the facility and a higher hatch rate than has been seen in several years. As a result, a turtle release is being planned for later in the year releasing 150 turtles into the wild on that occasion – thereby continuing our conservation efforts and aims to increase the wild population of Green sea turtles.

Through recent satellite-tagged turtle releases, we are also able to capture data on the behavior of Green sea turtles released into the wild – where they go and what they do, and thus far we have seen that the satellite-tracked turtles we have released into the wild have adapted well to their new habitat.

To further its own aims, the WSPA in its goal to shut down our operations is using every tactic imaginable and attacking all angles of the important work the Cayman Turtle Farm has been doing over the past 40 years. We maintain that our operations are safe for both the turtles in our care and all guests at our facility. We also stand by our scientific research and our conservation mandate and record.

We look forward to the upcoming independent review of our operations and pledge to continue to uphold the highest standards for our guests and our turtle population.

The Cayman Turtle Farm remains committed to our work with Green sea turtles – in conservation, reproduction, display and education – as we endeavour to preserve the population of this species so humans may continue to learn from them and experience the joy of interacting with these animals that are held in such high esteem in our Islands' national heritage and consciousness.

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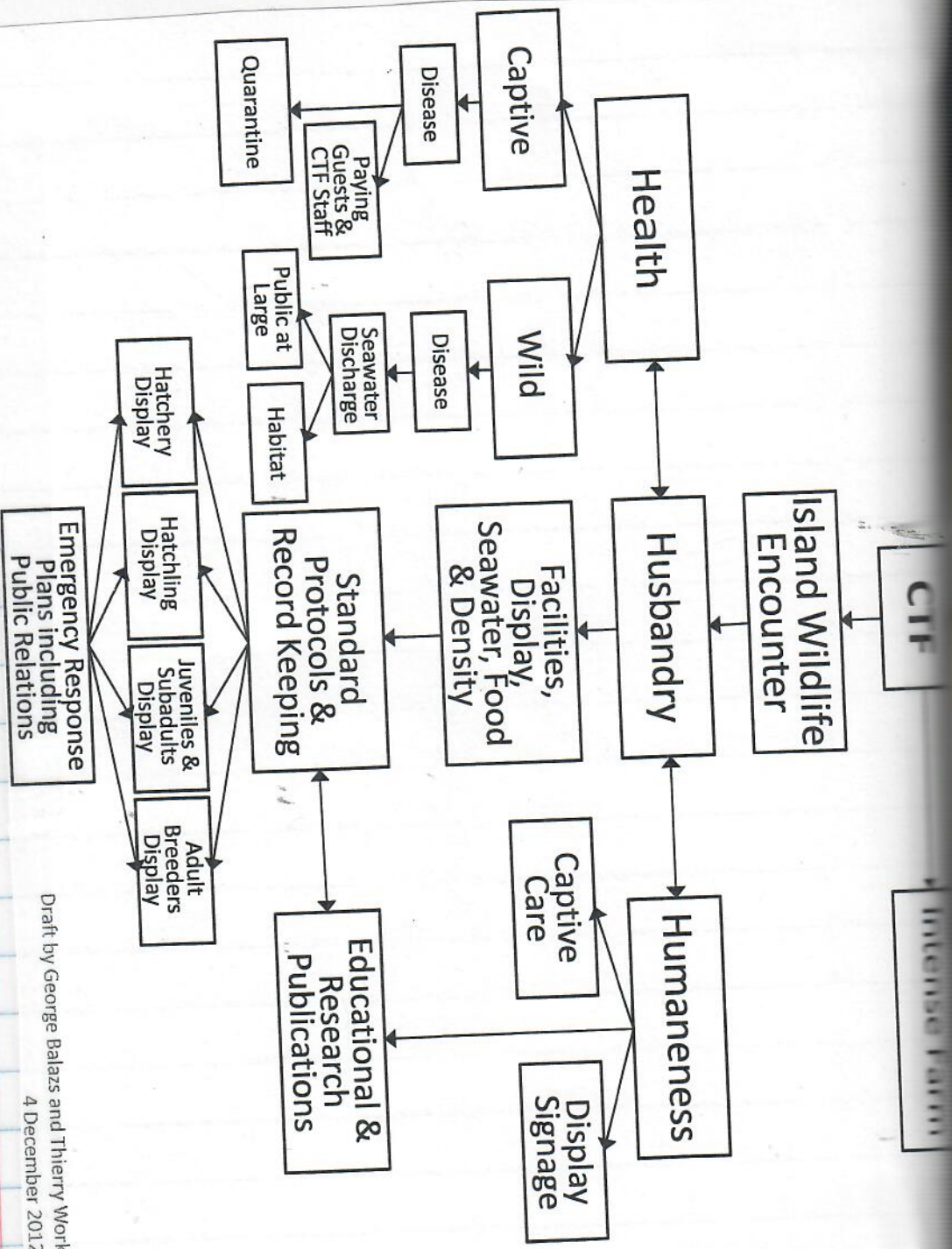
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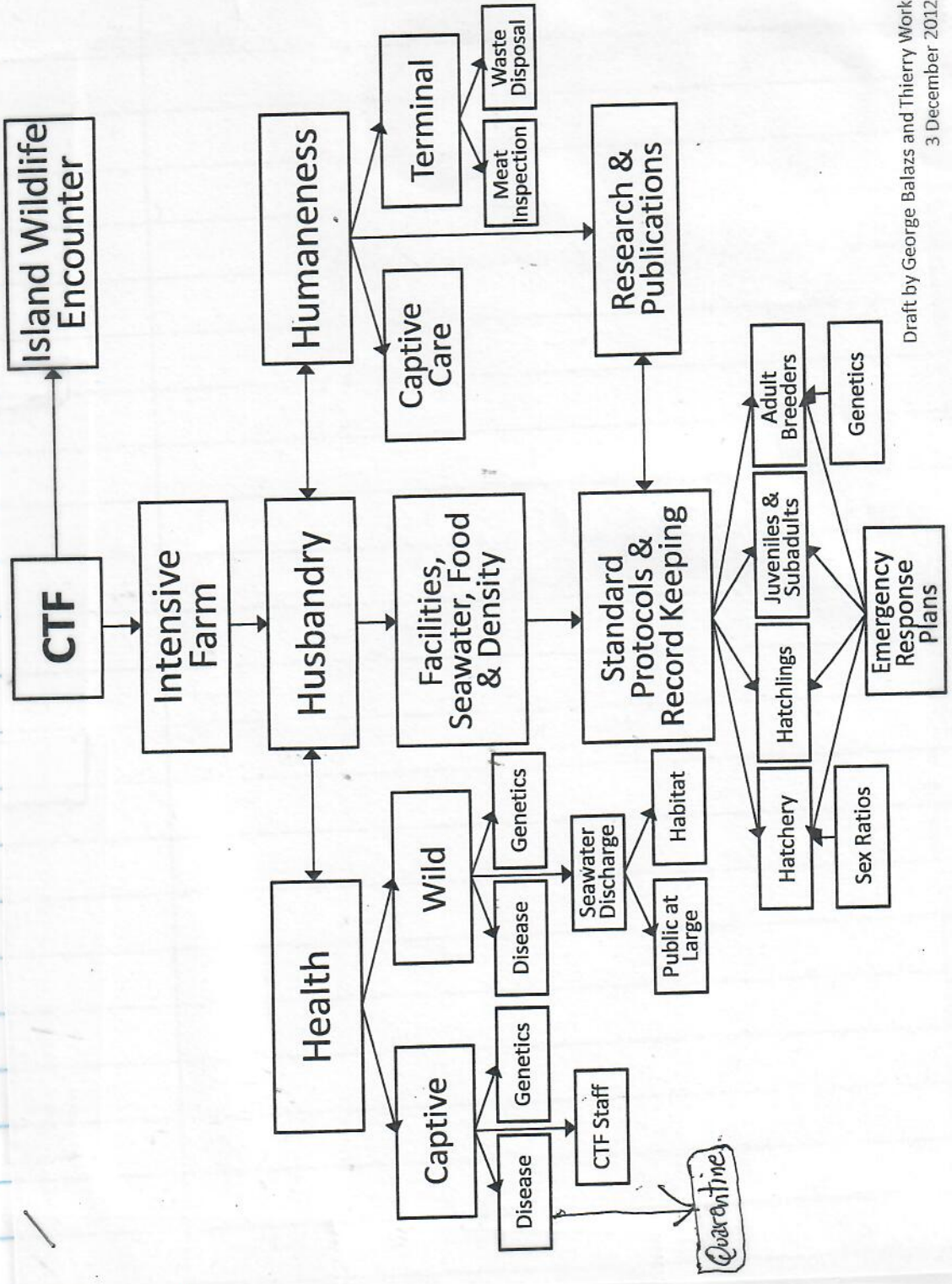
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4 December 2012

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Draft by George Balazs and Thierry Work
3 December 2012