CONVENTION SUR LE COMMERCE INTERNATIONAL DES ESPÈCES
DE FAUNE ET DE FLORE SAUVAGES MENACÉES D'EXTINCTION

Soixante-sixième session du Comité permanent
Genève (Suisse), 11 – 15 janvier 2016

Interprétation et application de la Convention

Dérogations et dispositions spéciales pour le commerce

Enregistrement des établissements élevant en captivité à des fins commerciales des espèces animales inscrites à l'Annexe I

ENREGISTREMENT DE L'ETABLISSEMENT « NOUVELLE DECOUVERTE » ELEVANT *ASTROCHELYS RADIATA*

1. Le présent document a été préparé par le Secrétariat. Il porte sur une demande de Maurice pour l'enregistrement de l'établissement « Nouvelle Découverte », élevant *Astrochelys radiata,* au *Registre CITES des établissements élevant en captivité à des fins commerciales des espèces animales inscrites à l'Annexe I*, et sur une objection de Madagascar à ce sujet.

2. La résolution Conf. 12.10 (Rev. CoP15) sur l'*Enregistrement des établissements élevant en captivité à des fins commerciales des espèces animales inscrites à l'Annexe I* établit les procédures d'enregistrement des établissements d'élevage en captivité, incluant notamment la description du rôle des organes de gestion, du Comité pour les animaux, du Comité permanent et du Secrétariat, ainsi que les étapes à suivre en cas d'objection à l'inscription ou de non-conformité avec les dispositions de la résolution.

3. Le 6 mars 2014, le Secrétariat a reçu une demande de Maurice pour l'enregistrement de l'établissement « Nouvelle Découverte », élevant *Astrochelys radiata,* au *Registre CITES des établissements élevant en captivité à des fins commerciales des espèces animales inscrites à l'Annexe I*. Après avoir reçu des informations complètes (annexe 1), le Secrétariat a publié la notification aux Parties n° 2015/035 du 15 juin 2015, proposant que le nouvel établissement d'élevage en captivité mentionné ci-dessus soit ajouté au Registre, et définissant le 13 septembre 2015 comme date limite pour la soumission d'objections à l'enregistrement de cet établissement.

4. Le 7 août 2015, le Secrétariat a reçu une objection à cette proposition d'enregistrement, transmise par Madagascar qui s'interrogeait notamment sur la légalité de la présence d'*Astrochelys radiata* à Maurice, et sur les capacités techniques de l'établissement d'élevage (annexe 2). Le 24 août 2015, avec le consentement de l'organe de gestion de Madagascar, le Secrétariat a transmis l'objection à l'organe de gestion de Maurice, l'encourageant à contacter l'organe de gestion de Madagascar et à établir un dialogue à propos de l'enregistrement. Toutefois, le Secrétariat n'a pas eu connaissance de contacts directs entre les deux Parties à ce sujet.

5. En réponse aux questions soulevées par Madagascar, Maurice a fourni au Secrétariat le 15 septembre 2015 des informations supplémentaires sur l'établissement (annexe 3). Dans une autre tentative d'initier un dialogue entre les deux Parties, et avec le consentement de l'organe de gestion de Maurice, le Secrétariat a traduit la réponse de Maurice en français et a l'a transmise à Madagascar le 21 septembre 2015.

6. L'annexe 2 de la résolution Conf. 12.10 (Rev. CoP15) prévoit que :

> *« Si une ou plusieurs Parties ont des objections à un enregistrement, le Secrétariat transmet la documentation au Comité pour les animaux, qui examine les objections. Le Comité pour les animaux répond à ces objections dans les 60 jours. Le Secrétariat transmet les commentaires du Comité pour les animaux aux Parties concernées et leur accorde un nouveau délai de 30 jours pour résoudre les problèmes. »*

7. Le 16 septembre 2015, et conformément à la disposition mentionnée ci-dessus, le Secrétariat a soumis au Comité pour les animaux les documents de l'organe de gestion de Maurice concernant le fonctionnement de l'établissement d'élevage « Nouvelle Découverte », ainsi que l'objection de Madagascar et la réponse subséquente de Maurice. Il a invité le Comité à examiner l'objection et à fournir ses commentaires au plus tard le 15 novembre 2015.

8. Après avoir examiné la documentation et l'objection, le Comité pour les animaux a fait les commentaires suivants :

   Le Comité pour les animaux a examiné les éléments appuyant l'objection de Madagascar à l'enregistrement d'une infrastructure d'élevage en captivité (Nouvelle découverte) à Maurice, à des fins d'élevage d'Astrochelys radiata*, une espèce inscrite à l'Annexe 1. De notre point de vue, Maurice a démontré que l'enregistrement est conforme à la résolution Conf.12.10. Le Comité pour les animaux ne partage donc pas l'objection soulevée par Madagascar*.

9. Conformément au paragraphe 3 de l'annexe 2 de la résolution Conf. 12.10 (Rev. CoP15), le Secrétariat a transmis les commentaires du Comité pour les animaux à Madagascar et à Maurice le 17 novembre 2015 afin de leur accorder un nouveau délai de 30 jours pour résoudre les problèmes identifiés. Ce délai a expiré le 17 décembre à 2015.

10. Le 16 décembre 2015, avant l'expiration du délai de 30 jours, le Secrétariat a rappelé à Madagascar et à Maurice que si l'objection n'était pas retirée, la question serait soumise au Comité permanent pour délibération à la présente session.

11. Malgré ce rappel, le Secrétariat n'a reçu aucune indication de retrait de l'objection de Madagascar ni de résolution des problèmes identifiés. Conformément au paragraphe 4 de l'annexe 2 de la résolution Conf. 12.10 (Rev. CoP15), la demande doit donc être soumise au Comité permanent lors de sa session ordinaire suivante.

Recommandation

12. Le Comité est invité à examiner l'objection portant sur l'enregistrement de l'établissement « Nouvelle Découverte », élevant en captivité *Astrochelys radiata*» à Maurice, conformément au paragraphe 4 de l'annexe 2 de la résolution Conf. 12.10 (Rev. CoP15).

    a) Si le Comité estime que l'objection est insignifiante ou infondée, il la rejette et la demande est acceptée ;

    b) Si le Comité estime que l'objection est justifiée, il examine la réponse de la Partie qui a soumis la demande d'enregistrement et décide s'il y a lieu d'accepter cette demande.

MINISTRY OF AGRO INDUSTRY & FOOD SECURITY
National Parks & Conservation Service, (NPCS)
Réduit

Our Ref: NP 40/EXP/Aldabra Tortoise **17 March 2015**

Re: Application of Mr. Forget

Please find below clarifications on the different sections mentioned below, concerning the application of Mr. Forget for the registration of his farm as a breeding center for commercial purposes for ***Astrochelys radiata***.

Section 5 of the application "Parental breeding stock":-

There are two sub-adult animals which have been included in the list of breeding stock.

Section 6 "Proof of legal acquisition":-

There is no feral population of ***Astrochelys radiata*** in Mauritius. All the animals introduced since the beginning of the eighteenth century have been kept in captivity or what is called "a controlled environment". As per application submitted, breeding stocks were established in 2005 from animals from own personal collection and bought locally.

Regarding evidence of parental stock, please note that parental stock have been obtained legally as no animals have been captured from the wild and the original parent stock have been introduced in Mauritius well before the enactment of the Convention.This species is protected under the second schedule of the Wildlife & National Parks Act (1993).

Section 7 "Other stock":-

This refers to the 45 breeding stock and 20 juveniles.

Section 9 "Reproduction":-

One generation has been bred on the farm from animals which are born in Mauritius, hence for two generations.

We wish to bring to your kind attention that La Vanille Reserve des Mascareignes is a registered breeder with the Secretariat and this is listed on the CITES Website.Date of CITES registration is 1 October 2012.Operation No: A-Mu-501.

Section 10 "Annual production:-

Annual production since 2005(see appended table)

Section 11 "Need for additional specimens":-

This will be catered for during local registration.

Section 12 "Type of product exported":-

All animals to be exported should be a size that they can be microchipped before export.

Section 13 "Marking methods":-

Specification for microchip and microchip readers are as follows:-

Microchip - 100A : 11.5mm

Microchip Reader: Reader TROVAN GR 251 High Performance Portable Multi Reader.
TROVAN Reader LID – 560 ISO Pocket Reader

NPCS can countercheck these microchip numbers.

Section 14 "Inspection and Monitoring procedures":-

Officers from National Parks and Conservation Service and Division of Veterinary Services carry out site visits and monitoring at least once a year to see if the animals are well kept and if premises are maintained to the satisfaction of the Veterinary Officer.

Section 15 "Facilities":-

The Tortoises will be kept on a plot of land of 8 acres with applicant living on site together with security watchman. 2 outdoor fenced pen of approximately 25 mts X 25 mts for the adults and one rearing outdoor enclosure of approximately 10 mts X 10 mts and a indoor room of 7 mts X 3 mts.

	Females	Males	Thought Males But Females	Mortality Males	Mortality Females	Sub-Adults Females??	Total	juveniles born	Mortality	Gift/Sold	Total
2005	15	30					4	9			13
2006							13	7			20
2007							20	12			32
2008	10				1		32	9			41
2009							41	26		6	61
2010			3	1			61	27			88
2011							88	18	4	2	100
2012							100	23	2		121
2013						2	121	0	6	2	113
Total feb 2013	27	26				2		135 *	12	10	589
	(15+10-1+3)	(30-3-1)									

*+ 4 juveniles born in 2004.

Application for CITES Permit

1.	**Name of Applicant**	Mr. Gilbert Forget
2.	**Contact Details**	Nouvelle Découverte St Pierre Ile Maurice
3.	**Date of Establishment:**	• Established since 2000. • Registered as a breeder with National Parks & Conservation Services (NPCS) since 2005.
4.	**Species Bred**	• Astrochelysradiata • Common Name :Sokatra, Tortue étoilé, Sokake
5.	**Parental Breeding Stock**	• 27 adult females • 26 adult males
6.	**Proof of Legal Acquisition**	• Affidavit and supporting Documents
7.	**Other Stock**	• 2 sub adults • 113 juveniles
8.	**Mortality Rate**	
9.	**Reproduction**	As the parental stock specimens were brought to Mauritius by the 18th century, they are long time ago F2 captive bred specimens and kept by several backyards owners on the island since. In our operation we collect the eggs mainly in summer after spotting the female digging the nest, mark the place and after she has finished, come back to dig for the eggs to be brought to the incubator.
10.	**Annual Production**	Expect 80-90 offsprings during the first years, 27 females having 3 clutches of 3 eggs = 243 eggs/ year
11.	**Need for additional Specimens**	With the very long life cycle of the Astrochelysradiata (75-100 years) we will not need additional specimens to increase the genetic pool in a near future. Yet in case of need, we may get a few locally with backyard owners or set up an exchange program with la vanilla reserve des Mascareignes in Mauritius & Rodrigues.
12.	**Type of product exported**	Live animals

SN	Year	Cause of Death	Age	Specification
1.	2008	Accident	20 Years	One Female
2.	2010	Kidney Failure	Old Age	One Male
3.	2011	At Birth	Juvenile	Four
4.	2012	At Birth	Juvenile	Two
5.	2013	At Birth	Juvenile	Six

13.	**Marking Methods**	• Breeding stock: All parental stock has transponders. • Offspring: Up to 3 years each juvenile is marked with a number on the carapace • Exported specimen: will be marked with transponders
14.	**Inspection and Monitoring Procedures**	All breeding stock and offspring are marked with transponders and are to be inspected and controlled by National Parks & Conservation Services (NPCS) giving access to the farm and to available data.
15.	**Facilities**	1&2. The breeding stock is kept on the property, a fenced plot of land of 8 arpents with applicant living on site, with watchman and CCTV Camera will be installed 3. 2 outdoor fenced pen of 25mts x 25mts for the adults, one rearing outdoor enclosure of approximately 10mts x 10mts and one indoor room 7mts x 3mts for rearing. Each has available fresh borehole water taps and ponds for drinking water and soaking. 4. 3 incubators of 96 eggs each with heating mats and apparatus for controlling the heat and humidity. 5. Mauritius being a tropical island, the captive stock can easily be fed with readily available food for herbivores on and around premises very similar as in their natural habitat, plus a supplement of calcium, vitamin and occasionally some fruits and always fresh water available. 6. We can get access very easily to veterinary services in Mauritius, there are several private veterinary services available, there are also free services offered by Government for live stock breeders, Internet is also a very good source of information, and applicant own several books of reference.
16.	**Conservation**	Each captive breed specimen to be exported for the pet trade and zoo will have been born in captivity at lease F2, monitor by NPCS and having transponder thus preventing poaching the wild breed animals in their country of origin, eventually a survival insurance to increase the wild population in the country of origin and a helping hand to the conservation of the species. With the actual market price, we will donate of 100 US dollars per tortoise exported to CITES Malagasy We are agreeable to pass on our "savoir faire" to the cause of conservation of the Astrochelysradiata in their natural habitat. Many worldwide experts in conservation suggested implementing regulated & homologated breeding farm of Astrochelysradiata to help and give an alternative to the degradation of habitat, food consumption of sokatra and illegal traffic that are decimating nature. Some go even further saying registered Captive Breeding Farm is the only way to go.

17.	**Animal Treatment**	Each tortoise living on the farm operation enjoys very good living conditions in appropriate enclosures in same climatic condition of their country of origin with a lot of space around; they are feed daily with grass and other plants as in their natural habitat, a lot of sunlight, shade, humidity and a supplement of calcium, vitamin and fresh water, supervise by NCPS. Applicant holds a certificate of achievement "The tortoise trust course on chelonian husbandry" and several books of reference.

Submitted on 28.02.2014

MINISTRY OF AGO INDUSTRY AND FISHERIES
National Parks & Conservation Service Réduit
Tel: 464 4016, 464 2993; Fax: 465 1184
Email: npcs@mail.gov.mu

Our Ref: NP 31/1

10th January 2006

To: **Mr. Gilbert Forget**
Bumma Lane
Nouvelle Decouverte
St. Pierre

Thro' Director, NPCS 4/13/nc6

TORTOISE REARING – GILBERT FORGET

National Parks and Conservation Service (NPCS) is pleased to inform you that the Ministry of Agro-Industry & Fisheries in a letter dated 29th December 2005, has approved your request for breeding tortoises at the above-mentioned address.

However, you are also informed that the breeding activity has to be carried out to the satisfaction of both NPCS and Veterinary Services, who will have to carry out regular monitoring (e.g site visit).

Yours faithfully

Dr. R. Sookhareea
Research and Development Officer (Wildlife)
For Senior Chief Executive

rs/rb

IN THE SUPREME COURT OF MAURITIUS

I, Gilbert Jean-Claude Forget, a Company General Manager, of Nouvelle Découverte and bearer of National Identity Card No. F2209548204420

MAKE OATH AND SAY AS FOLLOWS:-

Duval Chambers
Suite 509-510 St James Court
St Denis Street, Port Louis
Tel: 211-8688/210-7353
Fax: 210-7364
E-mail:pnyush03@yahoo.com

1. That I am now 52 years old and have since my childhood been keenly interested in the breeding of tortoises. I devote a lot of my time to that particular hobby of mine. Indeed various members of my family have, for generations, bred tortoises in their backyard.

2. That in December 2005, the Ministry of Agro Industry and Fisheries of Mauritius approved my request to be allowed to breed tortoises at Nouvelle Découverte under the provisions of the Wildlife National Parks Act, 1993 hereinafter referred to as "the Act".

3. That I have in my breeding stock certain specimen of the species known as GEOCHELONE RADIATA, a species provided for in the Fourth Schedule to the Act and which were all born on the island of Mauritius.

4. That the said GEOCHELONE RADIATA species was introduced in Mauritius at the end of the eighteenth century and has ever since lived in this Country in what is called "a controlled environment".

5. That all the GEOCHELONE RADIATA tortoises now to be found in my breeding farm are at least second generation offspring (F2) bread in "controlled environment". This is supported –

(a) by the work written by Marlène Lingrad, Nivo Raharison, Elizabeth Rabakonandrianina & ors and published by SAGE Publications, New Delhi where, at page 225, one reads:-

"During the eighteenth and nineteenth centuries great number of radiated tortoises were exported to the islands of Réunion and Mauritius where the species are considered a delicacy. Malagasy authorities initially protected the radiated tortoise in 1960, and in 1975 the species were listed in Appendix I of the Convention of International Trade in Endangered Species (CITES)"; and

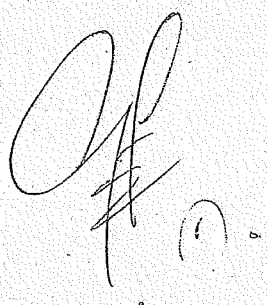
(b) various documents published under the authority of Cites as can be verified on :-

(a) CITES listed species database obtainable on http://sea.unep-wcmc.org/CITES

(b) UNEP World Conservation Monitoring Centre, http://sea.unep-wcmc.org/isdb/CITES

(c) Photocopies of studies of Mascarene Island Birds Edited by AW Diamond A S Cheke and Sir H.F.I Elliott.

6. That I finally confirm that to the best of my knowledge and belief that none of the tortoises found on my farm were brought from abroad and that they do all conform to the CITES requirements concerning tortoises for export abroad.



7. I swear accordingly upon my honour.

Sworn by the above named deponent)
At Chambers, Supreme Court House)
Port Louis, this 5th day of)
February, 2007.)

Drawn up by me

Me.Geereesha Ramsarran
Attorney At Law

Before me

M. PALAWAN
Chief Court Officer
SUPREME COURT

Supreme Court

Tortoise Trust
BM Tortoise
London, WC1N 3XX, U.K.

Tortoise Trust Institute
www.ttinstitute.co.uk

CERTIFICATE OF ACHIEVEMENT

This certificate is awarded to

Gilbert J.C. Forget

For having successfully completed

THE TORTOISE TRUST COURSE ON CHELONIAN HUSBANDRY

A.C. Highfield — Director

15th July 2006

Liste of Astrochelys Radiata

		Transponder		SCL
1	Female	95600000	2894569	34 cms
2	Male	95600000	2896529	31 cms
3	Male	95600000	2898979	38 cms
4	Male	95600000	2894879	39 cms
5	Male	95600000	2896332	40 cms
6	Female	95600000	2897883	33 cms
7	Male	95600000	2907282	38 cms
8	Male	95600000	2892517	35 cms
9	Male	95600000	2897138	31 cms
10	Female	95600000	2898481	35 cms
11	Male	95600000	2890598	47 cms
12	Male	95600000	2896924	36 cms
13	Male	95600000	2893201	36 cms
14	Female	95600000	2892197	28 cms
15	Female	95600000	2896599	37 cms
16	Female	95600000	2896657	36 cms
17	Female	95600000	2894288	36.5 cms
18	Female	95600000	2897412	37 cms
19	Female	95600000	2891388	37.5 cms
20	Male	95600000	2892854	37 cms
21	Male	95600000	2895673	41 cms
22	Female	95600000	2893648	30.5 cms
23	Female	95600000	2900286	35 cms
24	Male	95600000	2897270	36 cms
25	Male	95600000	2893058	39 cms
26	Male	95600000	2894211	35 cms
27	Male	95600000	2896997	39.5 cms
28	Female	95600000	2893550	38 cms
29	Male	95600000	2907460	37.5 cms
30	Male	95600000	2892493	34 cms
31	Female	95600000	2898484	37 cms
32	Male	95600000	2893490	42.5 cms
33	Female	95600000	2895281	40.5 cms
34	Female	95600000	2894994	34.5 cms
35	Female	95600000	2895594	39 cms
36	Male	95600000	2891007	39 cms
37	Female	95600000	2894855	33.5 cms
38	Female	95600000	2897004	30 cms
39	Female	95600000	2893510	28.5 cms
40	Female	95600000	2907274	38 cms
41	Male	95600000	2898099	34 cms
42	Female	95600000	2892203	36,5 cms
43	Female	95600000	2895614	34 cms
44	Female	95600000	2893007	37.5 cms
45	Male	95600000	2890864	34.5 cms
46	Male	95600000	2895160	37 cms
47	Male	95600000	2896330	42 cms
48	Male	95600000	2891620	38 cms
49	Male	95600000	2894757	37 cms
50	Female	95600000	2897713	38 cms
51	Female	95600000	2898927	35 cms
52	Female	95600000	2900107	37 cms
53	Female	95600000	2895910	32 cms
54	Female	95600000	2896539	31.5 cms
55	Female	95600000	2893994	33 cms

113 juveniles

Reproductive ecology and egg production of the radiated tortoise (*Geochelone radiata*) in southern Madagascar

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We studied reproduction of wild *Geochelone radiata* at the Cap Sainte Marie Special Reserve in southwestern Madagascar to gain insight into life history traits related to reproductive success. Reproductive behaviour was observed over two nesting seasons and egg production was studied by radiographing telemetered females at regular intervals. We captured and marked 1438 radiated tortoises of which 26% were adults. Mating and nesting coincided with the rainy season, and mating events peaked in December, shortly before females started nesting in January. The incubation period was approximately 263–342 days, and hatchlings emerged after the onset of the rainy season when new plant growth became available. Hatching success was high and incidental destruction by humans rather than predation had the greatest impact on tortoise nests. Individual females produced from 0–3 clutches per season with 1–5 eggs per clutch. Body size had a weak effect on clutch size, but clutch size was lower in the dry year (2000) than in the wet year (1999) and appears to reflect resource availability. Mean egg size per clutch increased significantly with increasing body size. These findings emphasize that protection of large females should be considered in the conservation of this species.

Key words: radiated tortoises, *Geochelone radiata*, reproduction, eggs, nests, Madagascar.

INTRODUCTION

Radiated tortoises or Sokatra (*Geochelone radiata*) are one of four species of tortoises endemic to Madagascar (Juvik 1975; Ernst & Barbour 1989). Their natural distribution is limited to xeric spiny forest of southwestern Madagascar (Iverson 1992a) in the regions of the Mahafaly and Karimbola Plateaus; however, they have been introduced to the islands of Mauritius and Réunion (Gonzalez 1993).

The IUCN Red List (Hilton-Taylor 2000) classifies *G. radiata* as 'Vulnerable'. Primary threats to the radiated tortoise's survival are collection and habitat loss (Durrell *et al.* 1989; Nussbaum & Raxworthy 2000). Although a local taboo against eating or touching radiated tortoises affords them protection, exploitation by immigrants and people from different regions has increased in recent years (Lewis 1995; Nussbaum & Raxworthy 2000). Significant habitat loss and destruction occur through forest clearing for agricultural use, charcoal production and overgrazing by livestock (Nussbaum & Raxworthy 2000). Additionally, protected areas such as Cap Sainte Marie Special Reserve and Lake Tsimanampetsotsa Strict Nature Reserve have free-ranging cattle and goats, which probably compete for food with wild tortoise populations.

Although Andriamampiandry (1987) examined the bio-ethology of radiated tortoises at the Beza-Mahafaly Special Reserve; Bloxam (1988) investigated temperature and activity rhythms; Lewis (1995) reported on population densities and Young (1997) studied demography at Cap Sainte Marie, no study has examined reproduction and hatchling survivorship of wild *G. radiata*. Existing information on reproduction is based on studies of captive animals: egg development (Schweizer 1965), reproduction (Zovickian 1973), courtship and breeding behaviour (Auffenberg 1978), captive management (Burchfield *et al.* 1980) and captive breeding (Peters 1969; Behler & Iaderosa 1991).

Their vulnerable status, scarcity of ecological information, and threats to *G. radiata* populations necessitate studies to gather baseline life-history data from healthy, natural populations. Effective

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The Role of Local Taboos in Conservation and Management of Species: The Radiated Tortoise in Southern Madagascar

Marlene Lingard, Nivo Raharison, Elisabeth Rabakonandrianina, Jean-Aimé Rakotoarisoa and Thomas Elmqvist*

The radiated tortoise, Geochelone radiata, is endemic to the semi-arid region of southern Madagascar. Despite formal protection by law since 1960 and listing in CITES since 1975, tortoise populations have been reported to be in rapid decline, mainly due to illegal harvesting for food and commercial trade. The Tandroy people, inhabitants of the Androy region, which covers approximately half the tortoise distribution range, do not, however, exploit the species. The Tandroy prohibition against tortoise consumption is expressed as a taboo or fady. The aim of this study was to document the narratives, rules and enforcement mechanisms linked to the taboo, and to assess the potential role of the taboo for the protection and management of the radiated tortoise. Interviews revealed that the Tandroy perception of the animal as 'dirty' underlies the Tandroy taboo, although one informant suggested that the taboo once originated in notions of sacredness. Estimated tortoise abundances ranged from 20 tortoises per ha in an area with no harvesting to 0.6 per ha in an area where a significant proportion of residents were reported to violate the taboo. Infrastructure changes and increasing numbers of immigrants to the region are sources of new pressures on the tortoise. An official

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acknowledgement of the fady custom and the transformation of this institution for the purpose of conservation and sustainable management of the tortoise may considerably reduce the current high costs of enforcement by formal institutions. The tortoise may constitute an important economic source of revenue if local communities are granted rights to a regulated small-scale trade for the pet market based on locally controlled farming of tortoises. Such actions may provide economic incentives for further transforming and building effective institutions for sustainable management. However, a local institutional strategy also needs to be nested with institutions across scales, for example, at regional and national levels, assisting in controlling harvest and trade.

Introduction

The role of local communities and local ecological knowledge in the management of natural resources and ecosystems has received increasing attention in recent years (for example, Berkes and Folke 1998, 2002; Berkes et al. 2000, 2003; Gadgil et al. 1993; Olsson and Folke 2001; Ostrom 1990). Local ecological knowledge refers to a cumulative body of knowledge, practice and belief of the relationships of living beings (including humans) with one another and with their environment, reflecting the dynamic way in which people organise perceptions of flora, fauna, ecosystem processes, culture beliefs and history (for example, Berkes and Folke 1998; Berkes et al. 2003; Gadgil et al. 1993). Such knowledge is often tacit, and its transmission and practical implementation is frequently accomplished through the prescriptions of social institutions, such as rituals and taboos (Colding and Folke 2001). The institution of taboos is a universal regulator of human behaviour, and a taboo can be described as a social prohibition of something that is regarded holy or unclean, and is often connected to ritual. Colding and Folke (2001) consider some taboos to be integral parts of 'invisible' systems of resource management and refer to nature-related social taboos as *resource and habitat taboos* (Table 1).

Colding and Folke argue that, although not necessarily perceived as instruments of resource management by the people who practise them, taboos nevertheless

Table 1
Resource and Habitat Taboos, and the Nature Conservation and Resource Management Functions of Each Category

Category	Function
Segment taboos	Regulate resource withdrawal
Temporal taboos	Regulate access to resources in time
Method taboos	Regulate methods of resource withdrawal
Life history taboos	Regulate withdrawal of vulnerable life history stages of species
Specific-species taboos	Total protection of species in time and space
Habitat taboos	Restrict access and use of resources in time and space

Source: Colding and Folke (2001).

often show a functional similarity to the institutions of formal nature conservation. Specific-species taboos regulate the utilisation of particular species and are usually inclusive prohibitions, barring exploitation of a particular species at all times. The rationale behind the existence of specific-species taboos vary, ranging from notions of the species being toxic, being perceived as religious symbols, as well as being avoided due to their behavioural and physical appearance. In an analysis of seventy specific-species taboos, about 30 per cent, predominantly reptiles and mammals, were found to be involve species recognised as 'threatened' by the International Union for the Conservation of Nature (IUCN) (Colding and Folke 1997). While this may be an unintended consequence, the enforcement of taboos may have a direct impact on species conservation. Taboos and other forms of informal institutions have, however, seldom been incorporated in biological conservation schemes, partly due to narrow definitions of what constitutes conservation (Berkes et al. 2003; Colding et al. 2003).

The radiated tortoise, *Geochelone radiata*, is among the world's rarer tortoises and is one of four endemic tortoise species in Madagascar. It occurs in the semi-arid region of the southern part of the island. Populations of the radiated tortoise are reported to be in decline throughout much of its range (Durrell et al. 1989; Juvik 1975; Nussbaum and Raxworthy 2000; O'Brien et al. 2003). Over the past twenty-five years the geographic range of the tortoise is estimated to have decreased by approximately 20 per cent (O'Brien et al. 2003), and the IUCN has listed radiated tortoise as 'vulnerable' (Hilton-Taylor 2000). Humans have harvested tortoises at least since the arrival of Europeans. The giant tortoise, *Geochelone gigantea*, most likely went extinct in Madagascar as a consequence of heavy exploitation and trade in the past (Bourn et al. 1999). During the eighteenth and nineteenth centuries great numbers of radiated tortoise were exported to the islands of Réunion and Mauritius where the species was considered a delicacy. Malagasy authorities initially protected the radiated tortoise in 1960, and in 1975 the species was listed in Appendix I of the Convention on International Trade in Endangered Species (CITES). Despite these initiatives, great numbers of radiated tortoise are killed for food and for the manufacture of tourist items, as well as exported as part of the exotic pet trade (Durrell et al. 1989; Juvik 1975; Nussbaum and Raxworthy 2000). Basing their proposition on three pieces of evidence, O'Brien et al. (2003) suggested that over-exploitation by humans is currently the most important driver of the decline of the radiated tortoise, that is: (*a*) commercial harvesters travel increasingly far, up to 200 km, to find sufficient densities of tortoises; (*b*) tortoises are either completely absent or present at very low abundance at sites subject to commercial harvesting, while in remote regions with no harvesting, tortoises persist at densities of up to 2,500 tortoises per sq. km; and (*c*) tortoise abundance increases significantly with distance from urban centres of high demand for tortoise meat.

The Tandroy people, inhabitants of the Androy region (Figure 1), which covers approximately half of the tortoise distribution range, do not exploit the tortoise

REPOBLIKAN'I MADAGASIKARA
Fitiavana - Tanindrazana - Fandrosoana

Antananarivo le, 04 AOUT 2015

SECRETARIAT GENERAL
DIRECTION GENERALE DES FORETS
DIRECTION DE LA VALORISATION DES RESSOURCES FORESTIERES
SERVICE DE LA GESTION DE LA FAUNE ET DE LA FLORE

N° 471 -2015/MEEMF/SG/DGF/DVRF/SGFF

Le Directeur Général des Forets
Organe de Gestion CITES

à

Monsieur le Secrétaire Général de la CITES

Maison Internationale de l'Environnement
15, chemin des Anémones
CH-1219 Châtelaine
Genève-Suisse
e-mail :info@cites.org
Fax : 4122 797 3417

Objet: Objection à la Notification N°2015/035 du 15 Juin 2015.

Monsieur le Secrétaire Général,

Ayant pris en compte la Notification citée en objet, j'ai l'honneur de vous faire part de notre objection à cette proposition pour les raisons suivantes :

- L'*Astrochelys radiata* est endémique à Madagascar. Dans la notification, il n'y a aucun document justifiant la présence de cette espèce ni à l'Ile Maurice ni dans le centre de l'opérateur.
- Nous aimerions aussi que les données ainsi que la capacité techniques du demandeur soient présentées pour que les Parties membres de la CITES puissent donner leur appréciation.
- Actuellement, le trafic des tortues dont l'espèce en question n'est pas encore maitrisable à Madagascar. De ce fait nous ne pouvons pas émettre un avis favorable à sa commercialisation tant que nous ne pouvons pas faire un suivi rigoureux du centre d'élevage.
- Certes, Madagascar a donné son accord exceptionnel pour le Centre « La Vanille, Réserve des Mascareignes » à l'Ile Maurice du fait qu'il développe une organisation orientée à la conservation aussi bien dans ce pays qu'à Madagascar et en plus il présente un excellent modèle pour l'élevage de la tortue Aldabra.

Notre préoccupation est actuellement de nous assurer de l'impact de la commercialisation des tortues radiées effectuée par La Vanille sur la situation de cette espèce à Madagascar dans un court et moyen terme. Ceci doit être fait avant de prendre une décision sur l'octroi d'autres agréments.

Comptant sur votre compréhension et votre diligence pour la diffusion de notre objection à cette demande d'enregistrement, je vous prie de recevoir, Monsieur le SG, l'expression de mes salutations les meilleures.

RO Fidy José
Ingénieur Principal des Eaux et Forêts

(English and French only / Unicamente en inglés y francés / Seulement en anglais et français)

Objection à la Notification 2015/035
Director - National Parks and Conservation Service 15/09/2015 10:48
To: Elena KWITSINSKAIA
Cc: Tom DE MEULENAER

Dear Elena

Please refer to your mail dated 24 August 2015 and its attachment on the above mentioned subject.

This Service as the CITES Management Authority(MA) of Mauritius(MRU) would to express its views and concerns to the Malagasian authorities regarding their objections to the request from Mr G. Forget(Mr G.F) to register his captive breeding facilities for the rearing and export of Astrochelys radiata .

a) Documents justifying the presence of A.radiata in Mauritius and at the breeder's place
It has been amply demonstrated through numerous publications that A. radiata has been introduced in Mauritius well before the entry in force of the CITES convention. Numerous documents have been supplied in the past to the CITES Secretariat and the Malagasy CITES MA to substantiate this fact in good faith. In the case of the application of " La Vanille Crocodile Park Ltd" , the Animals Committee has ruled out that " the breeding stock was established legally" Additionally," the UNEP-WCMC database lists the species as introduced into Mauritius"(Refer to email dated 23/07/07 from Paula Nicollin from the CITES secretariat addressed to me). You are also requested to refer section 6 of the application from Mr G.F on proof of legal acquisition. We are of opinion that Malagasy CITES MA is omitting the essentials.

b) Access to data and the technical expertise of breeder
Mr G.F and the MRU MA are ready to supply any data regarding his facilities and breeding stock to any Parties making the demand. Mr G.F has been rearing tortoises for the past 20 years and is registered as a breeder with NPCS since 2005. He is also a holder of a certificate of achievement (The Tortoise Trust course on chelonian husbandry". The MRU MA and Division of Veterinary Services are satisfied of the technical expertise of the breeder.
Additional information on breeder:
• Has a collection of 300 Tortoises and Turtles, including 168 Astrochelys Radiata , 75 Dipsochelys dussumieri , Geochelone carbonaria (the three species are reproducing) and 5 other species.
• Some reference books such as: Practical Encyclopedia of Keeping and Breeding tortoises and freshwater Turtles. Medicine of Tortoises and Surgery and Turtles by Stuart McArtur, Roger Wilkinson and John Meyer.
• Is using on the farm the High performance multi Trovan reader G251, the Trovan pocket reader LID -560, and the Trovan 100a transponders,
• Recently, he invested in the installation of CCTV video camera system to improve security of compound.
Does the Malagasy CITES MA doubt the competence and integrity of the MRU MA?

c) Illegal trafficking of this species
The third objection does not hold good because it was not deemed sufficient to counter the approval of la Vanilla Park in Mauritius as a registered breeding facility for A.radiata with the CITES secretariat .
In any case, in addition to the visits and control of the CITES MA of MRU, the applicant has also proposed that he would sponsor any visit to his farm that the CITES MA of Madagascar is willing to effect. Further we quote Malagasy CITES MA "Le trafic des tortues dont l'espèce en question n'est pas encore maitrisable à Madagascar"

The CITES secretariat may wish to note that A. radiata has been listed as a protected species in Madagascar since the year 1960 and has benefited from huge amount of funding and technical support from various funding bodies.

d) Commitment of Mr G.F for the conservation of this species in Madagascar
You may wish to refer to section 16 of his application whereby Mr G.F took the commitment to contribute what his colleague from La Vanille had proposed for the conservation of the radiated tortoise in Madagascar and is also willing to pay a fee of 100 $ per head sold ,to help Madagascar to better protect this species. In this matter, we respect the efforts undertaken by the Directorate General of Madagascan forests, but must emphasize that the validation of Mr G.F demand for registration is long overdue and cannot be delayed any longer in a spirit of fairness.
« Quote » from Animals Committee 2007 regarding the application from La Vanille Ltd."The committee recommends that this application be accepted for inclusion in the Register, being of opinion that the breeding stock was established legally and considering the breeding of this species in captivity for commercial purposes to be in the interest of conservation (giving this species a value, reducing the pressure on the wild populations, contributing to the livelihoods of the population)."As it can be seen any additional registered captive breeding facility can only contribute positively to the conservation of the radiated tortoise.

e) Concerns on the impact on the survival of this species through international trade of this species in short and medium term by La Vanille Crocodile Park ltd.
Regarding this concern of Madagascar MA of the impact of the commercialization of radiata tortoises in the short and medium termt -the facts speak for themselves, it is estimated to 7.5 to 12 Million radiata tortoises in their natural habitat (Leuteritz et al., 2005), 60,000 to 241,000 tortoises are illegally harvested per year (PHVA report 2005) (Randriamahazo et al., 2007), of which a large majority for local consumption as food (WWF Strategic Plan 2010) (IUCN redlist.org). Tortoise meat is especially popular around Christmas and Easter (Lewis 1995).
The application of La Vanille mentions a production estimation of 160 juveniles and 75 by Mr. G Forget in the early years, which brings us to +/- 235 specimens exported / year with transponders. Instead of having unjustified preoccupations for the two breeding farms of Mauritius, one should see as being not "Detrimental to the survival of the species in the wild" and acquired legally. As it can be seen any additional registered captive breeding facility can only contribute positively to the conservation of the radiated tortoise.
Protocol agreement already mentioned and discussed with MA of Madgascar.
Specimens 3 years for export will be equipped with transponder.
An official visit of 3 officers of Madagascar MA for 3 days, on the farm when there will be export sales.
A levy of US $ 100 per animal exported, for the conservation of the species in Madagascar.

In view we are of opinion that objections raised by Madagascar are unfounded and it would be appreciated if you could relay the contents of this mail to the Malagasy CITES MA, for consideration to withdraw their objection.

Kind regards

Vishnu

Vishnuduth Bachraz
Deputy Director
NPCS
Management Authority of Mauritius
Reduit
FOR DIRECTOR

Ref. : votre courriel du 24 août 2015 et son annexe sur le sujet.

Ce Service, en sa qualité d'organe de gestion CITES de Maurice, souhaite exprimer son opinion et ses préoccupations aux autorités malgaches concernant leurs objections à la demande de M. G. Forget d'enregistrer son établissement d'élevage en captivité pour l'élevage et l'exportation d'*Astrochelys radiata*.

a) Documents justifiant la présence d'*A. radiata* à Maurice et dans la propriété de l'éleveur
Il a été largement démontré, par de nombreuses publications, qu'*A. radiata* a été introduite à Maurice bien avant l'entrée en vigueur de la Convention de la CITES. Plusieurs documents ont été fournis par le passé au Secrétariat CITES et à l'organe de gestion CITES de Madagascar pour justifier ce fait, en bonne foi. Dans le cas de la demande de "La Vanille Crocodile Park Ltd", le Comité pour les animaux a décidé que "le stock reproducteur était établi légalement". En outre, "la base de données du PNUE-WCMC inscrit l'espèce comme introduite à Maurice" (voir courriel daté du 23/07/07 de Paula Nicollin du Secrétariat CITES, adressé à moi-même). Nous vous demandons aussi de vous référer à la section 6 de la demande de M. G. Forget, sur les preuves d'acquisition légale. Nous sommes d'avis que l'organe de gestion CITES de Madagascar omet des points essentiels.

b) Accès aux données et à l'expertise technique de l'éleveur
M. G. Forget et l'organe de gestion CITES de Maurice sont prêts à fournir toutes les données concernant l'établissement et le stock reproducteur à toutes les Parties qui en feront la demande. M. G. Forget élève des tortues depuis 20 ans et est enregistré comme éleveur auprès du NPCS depuis 2005. Il possède également un certificat de reconnaissance (le cours du *Tortoise Trust* sur l'élevage des chéloniens). L'organe de gestion CITES de Maurice et la Division des services vétérinaires n'ont aucun doute sur les compétences techniques de l'éleveur.

Information supplémentaire sur l'éleveur:
• Il possède une collection de 300 tortues terrestres et tortues d'eau douce, y compris 168 *Astrochelys Radiata*, 75 *Dipsochelys dussumieri*, *Geochelone carbonaria* (les trois espèces se reproduisent) et 5 autres espèces.
• Certains ouvrages de référence tels que: Practical Encyclopedia of Keeping and Breeding tortoises and freshwater Turtles. Medicine of Tortoises and Surgery and Turtles par Stuart McArtur, Roger Wilkinson et John Meyer.
• Il utilise dans son élevage le lecteur multi à haute performance Trovan G251, le lecteur portable Trovan LID-560 et les transpondeurs Trovan 100a.
• Récemment, il a investi dans l'installation d'un système de caméras vidéo CCTV pour améliorer la sécurité des lieux.
L'organe de gestion CITES de Madagascar a-t-il un quelconque doute concernant la compétence et l'intégrité de l'organe de gestion CITES de Maurice?

c) Commerce illégal de cette espèce
La troisième objection n'est pas fondée parce qu'il ne suffit pas de contester l'approbation de La Vanille Crocodile Park Ltd de Maurice en tant qu'établissement de reproduction enregistré pour *A. radiata* auprès du Secrétariat CITES. Outre, les visites et les contrôles de l'organe de gestion CITES de Maurice, le candidat a également proposé de parrainer toute visite dans sa ferme que l'organe de gestion CITES de Madagascar souhaiterait effectuer. Nous citons l'organe de gestion CITES de Madagascar: "Le trafic des tortues dont l'espèce en question n'est pas encore maîtrisable à Madagascar".
Le Secrétariat CITES pourrait noter qu'*A. radiata* est inscrite comme espèce protégée à Madagascar depuis 1960 et a bénéficié d'un financement et d'un appui technique importants de divers organismes de financement.

d) Engagement de M. G. Forget envers la conservation de cette espèce à Madagascar
Vous souhaiterez vous référer à la section 16 de cette demande, où M. G. Forget a pris l'engagement de contribuer à la proposition de son collègue de La Vanille pour la conservation de la tortue radiée de Madagascar et propose également de verser une somme de 100 USD par animal vendu pour aider Madagascar à mieux protéger l'espèce. À cet égard, nous respectons les efforts entrepris par la Direction générale des forêts de Madagascar mais nous soulignons que M. G. Forget attend la validation de sa demande d'enregistrement depuis très longtemps et que, par souci d'équité, celle-ci ne peut plus être retardée.

"Citation" du Comité pour les animaux 2007 concernant la demande de La Vanille Ltd. "Le comité recommande que cette demande soit acceptée pour intégration au Registre, car il est d'avis que le stock reproducteur a été établi légalement et considère que l'élevage de cette espèce en captivité à des fins commerciales est dans l'intérêt de la conservation (en effet, il donne une valeur à l'espèce, réduit les pressions sur les populations sauvages, contribue aux moyens d'existence de la population)". Comme on peut le voir, tout nouvel établissement d'élevage en captivité enregistré ne peut que contribuer de manière positive à la conservation de la tortue radiée.

e) Préoccupations concernant les effets, pour la survie de cette espèce, du commerce international à court et à moyen terme de La Vanille Crocodile Park Ltd .

Concernant les préoccupations de l'organe de gestion de Madagascar à propos des effets du commerce de tortues radiées à court et moyen terme – les faits parlent d'eux-mêmes: on estime que dans la nature, 7,5 à 12 millions de tortues radiées (Leuteritz *et al*., 2005) et 60 000 à 241 000 tortues terrestres sont illégalement prélevées chaque année (PHVA Report 2005) (Randriamahazo *et al*., 2007), en grande majorité pour la consommation alimentaire locale (WWF Strategic Plan 2010) (IUCN Redlist.org). La viande de tortue est particulièrement appréciée vers Noël et Pâques (Lewis, 1995).

La demande de La Vanille mentionne une estimation de production de 160 juvéniles et 75 par M. G. Forget dans les premières années, correspondant à une exportation annuelle de +/- 235 spécimens munis de transpondeurs. Au lieu d'avoir des préoccupations non justifiées concernant les deux fermes d'élevage de Maurice, celles-ci devraient être vues comme "ne nuisant pas à la survie de l'espèce à l'état sauvage", avec un stock acquis légalement. Comme on peut le voir, tout nouvel établissement d'élevage en captivité enregistré ne peut que contribuer positivement à la conservation de la tortue radiée de Madagascar.

Protocole d'accord déjà mentionné et discuté avec l'organe de gestion de Madagascar. Les spécimens âgés de 3 ans, pour l'exportation, seront équipés de transpondeurs. Visite officielle de trois responsables de l'organe de gestion de Madagascar pendant trois jours, à la ferme, lorsqu'il y aura des ventes pour l'exportation. Une somme de 100 USD par animal exporté pour la conservation des espèces à Madagascar.

Nous estimons que les objections soulevées par Madagascar ne sont pas fondées et nous apprécierions que vous communiquiez le contenu de ce courriel à l'organe de gestion CITES de Madagascar pour qu'il puisse envisager de retirer son objection.

Vishnuduth Bachraz
Deputy Director
NPCS
Organe de gestion de Maurice