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Malagasy amphibians; ...competing drivers & their impacts on conservation progress?

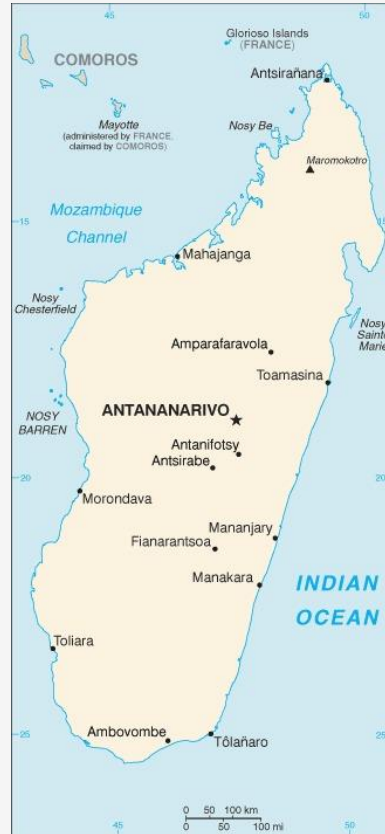
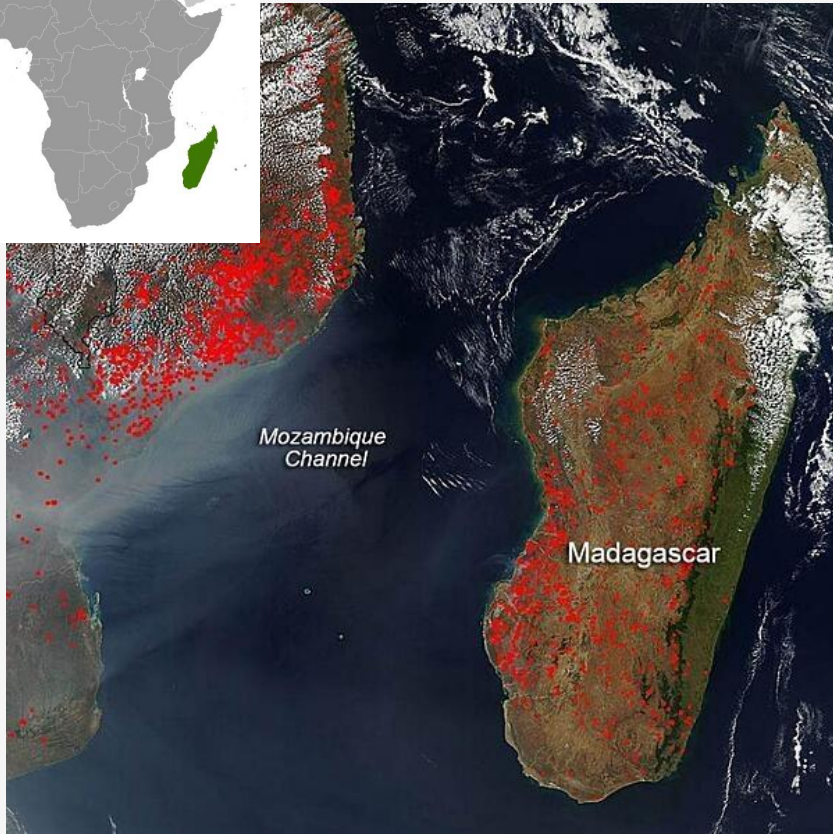
Dr Angus I. Carpenter
(IoSE, Ambleside campus, University of Cumbria)

13/12/2024

this session

- Madagascar; background info & setting the scene.
- history of amphibian IWT (International Wildlife Trade).
- conservation going forward (pressures &/or progress).

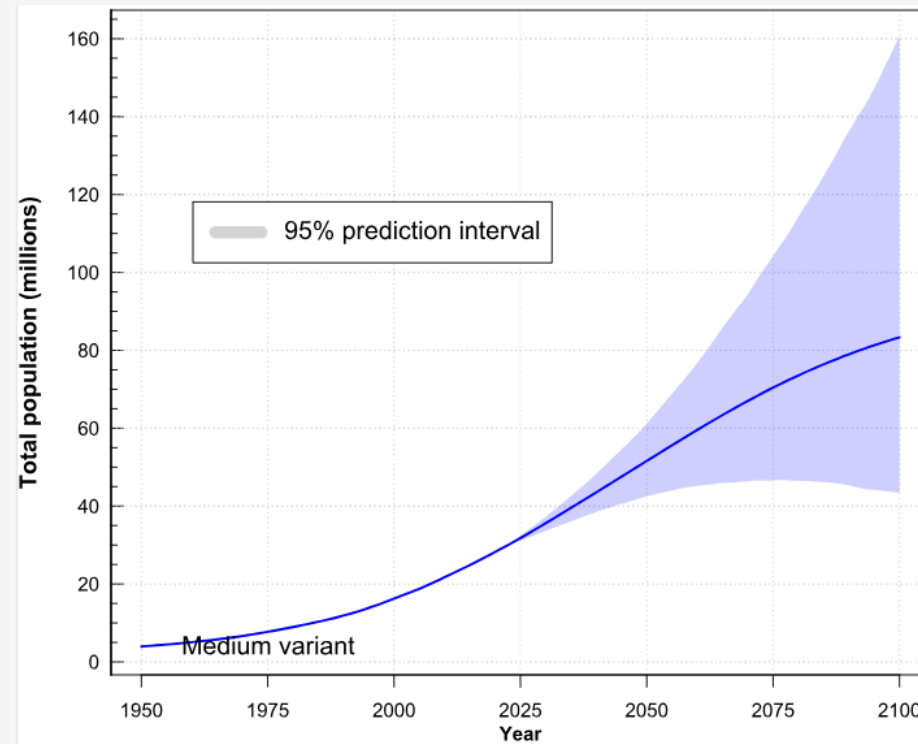
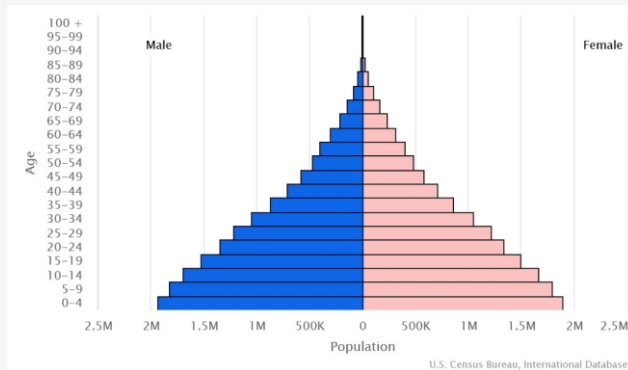
background info & setting the scene



- world's fourth-largest island.
- 6 provinces (faritany); (Antananarivo, Antsiranana, Fianarantsoa, Mahajanga, Toamasina, Toliara).
- Independence in 26th June 1960.
- President Andry Rajoelina.
- Land use (2018); agricultural land 71.1%, forest 21.5%.
- main exports; nickel, clothing, titanium, gold, vanilla, cloves (2021).
- **~71% population below the poverty line**
- **~ 90% of the flora and fauna endemic.**

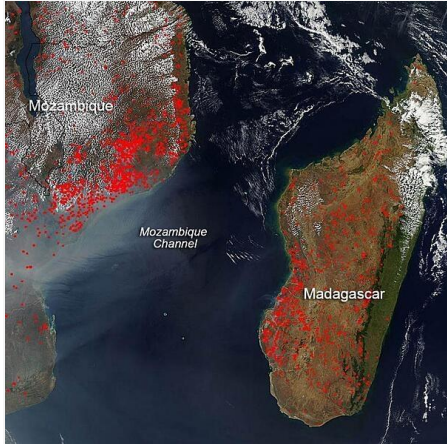
background info & setting the scene

UN 'total population' size for Madagascar;
1950's to 2100.



background info & setting the scene

Drought & Cyclones



Madagascar on the brink of climate change-induced famine

© 25 August 2021

Climate



WFP/TSIORY ANDRIANTSORANA



“25 people
...died... 21 are
missing, ~40,000
homeless” BBC
News



Madagascar: UN's WFP warns of a humanitarian crisis due to drought and Covid-19

A third of the population of Madagascar will suffer from food insecurity due to ongoing droughts and a recession.

16 January 2021 • News • Africa



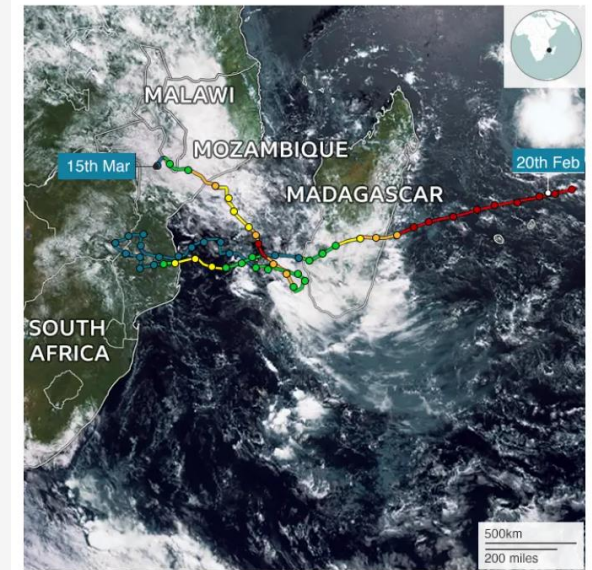
Madagascar: 1.5m face hunger because of drought, UN says

The UN says 1.5 million people in southern Madagascar are facing hunger because of a severe drought.

“More than 400 people have been killed and thousands of homes destroyed.” BBC News.

Cyclone Freddy path

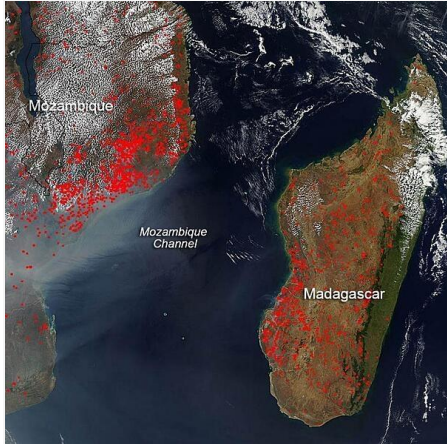
- Intense tropical cyclone
- Moderate tropical cyclone
- Tropical cyclone
- Low pressure area
- Severe tropical storm



Source: Zoom Earth

BBC

background info & setting the scene



Ways of trading

NEWS

Home | Israel-Gaza war | Cost of Living | War in Ukraine | Climate | UK | World | Business | Politics | Culture | UK | England | N. Ireland | Scotland | Alba | Wales | Cymru | Isle of Man | Guernsey | Jersey | Local News

Madagascan presidential aide charged with seeking £225,000 bribe in UK

© 14 August



BBC NEWS

LIVE **BBC NEWS CHANNEL**

News Front Page
World

A world map with Africa highlighted in red.

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Asia-Pacific
Europe
Middle East
South Asia
UK
England
Northern Ireland

Last Updated: Friday, 1 August, 2003, 08:06 GMT 09:06 UK
E-mail this to a friend
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Madagascar's scramble for sapphires

By Richard Hamilton
BBC, Sakaraha, Madagascar

The unregulated free-for-all trade in sapphires is causing growing concern in Madagascar, with allegations of widespread corruption and an increasing use of child labour.

A close-up photograph of a large, faceted blue sapphire set in a gold ring.

NEWS

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Madagascar polls close and opposition shuns votes

© 4 days ago



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Andry Rajoelina: French nationals sentenced for Madagascar coup plot

© 11 December 2021



Madagascar lychee trade mired in corruption ... “Most profits of the lucrative lychee trade between Madagascar and the EU are concentrated in the hands of a few powerful and politically-connected individuals”.

NEWS

Home | Israel-Gaza war | Cost of Living | War in Ukraine | Climate | UK | World | Business | Politics | Culture | World | Africa | Asia | Australia | Europe | Latin America | Middle East | US & Canada

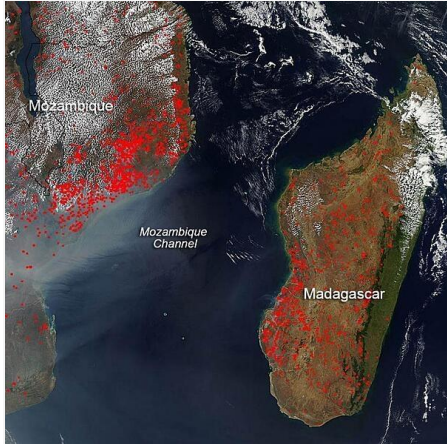
Rosewood: Kenya seizes illegal Hong Kong-bound cargo

© 28 May 2014



The rosewood was being shipped from Madagascar to Hong Kong... Illegal logging in Madagascar's rainforests has worsened since a coup in 2009, conservationists say.

background info & setting the scene



Politics & commitments

Mongabay Series: [Conservation in Madagascar](#)

Madagascar minister calls protected areas a 'failure,' seeks people-centric approach

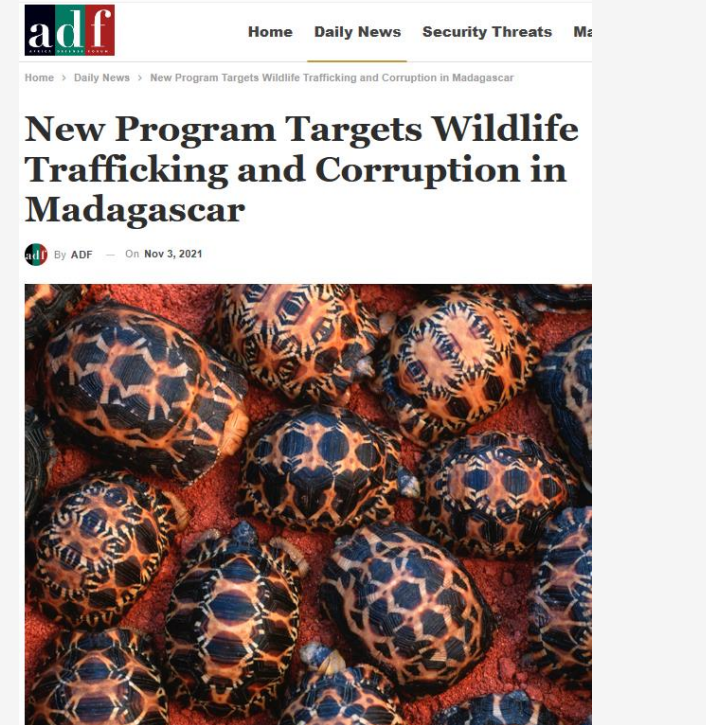
by Rivonala Razafison and Malavika Vyawahare on 20 August 2020



“The conservation of our biodiversity through Madagascar protected areas’ system for 30 years was a failure...

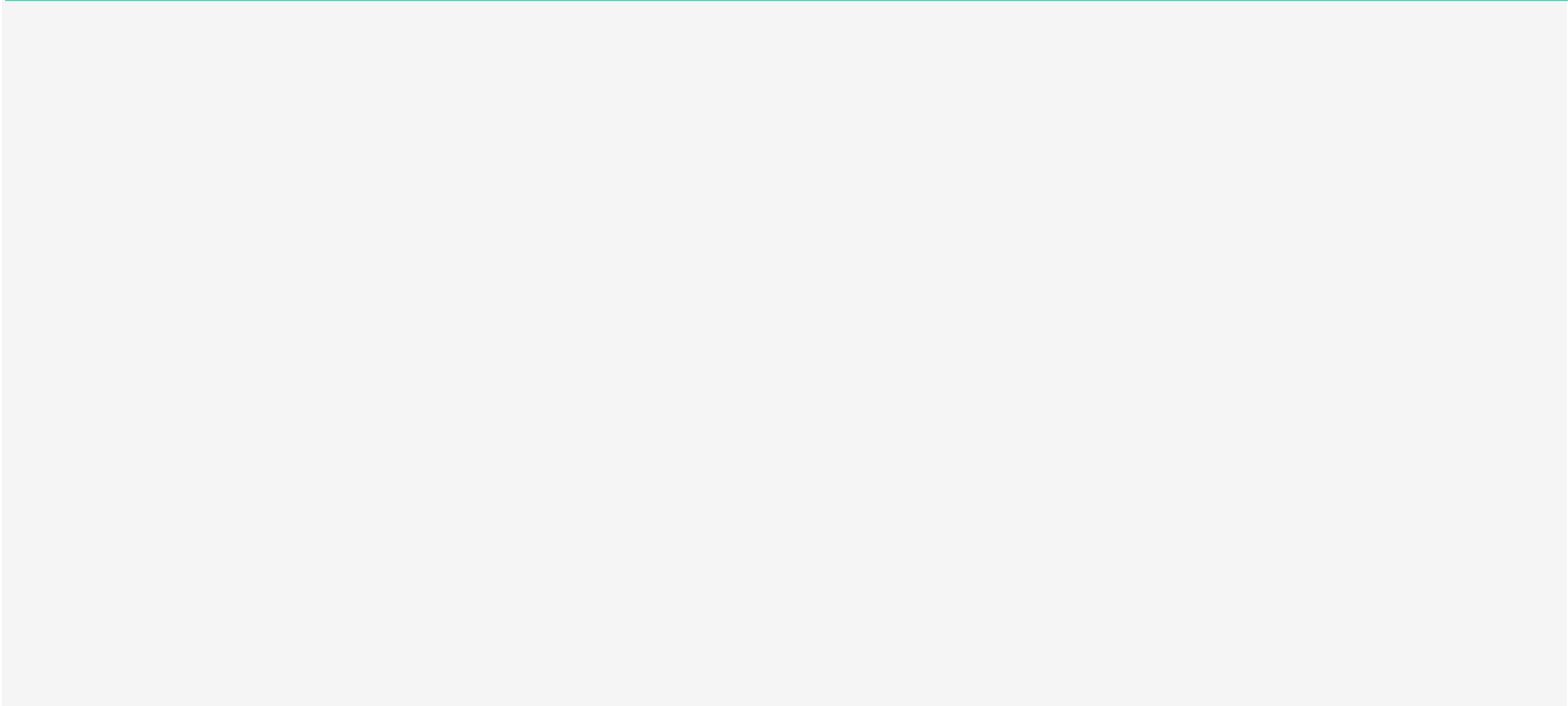
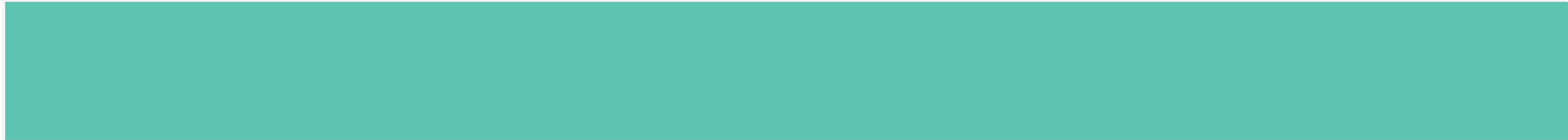
We have to change the paradigm and to move toward a system which doesn’t exclude humans and doesn’t put local communities on the side lines; it should be deeply social..”

<https://news.mongabay.com/2020/08/madagascar-minister-calls-protected-areas-a-failure-seeks-people-centric-approach/>



Madagascar is among the world’s most corrupt countries;
- Madagascar’s wildlife among the most poached on the planet.
- between 2018 & 2021, >21,000 native tortoises were seized from traffickers.

[New Program Targets Wildlife Trafficking and Corruption in Madagascar - Africa Defense Forum \(adf-magazine.com\)](#)



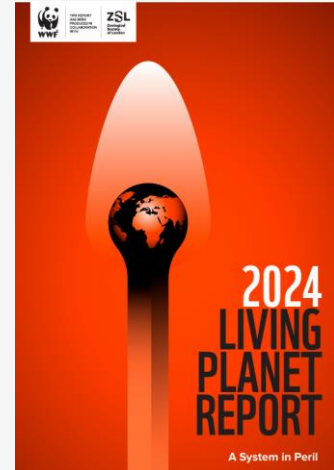
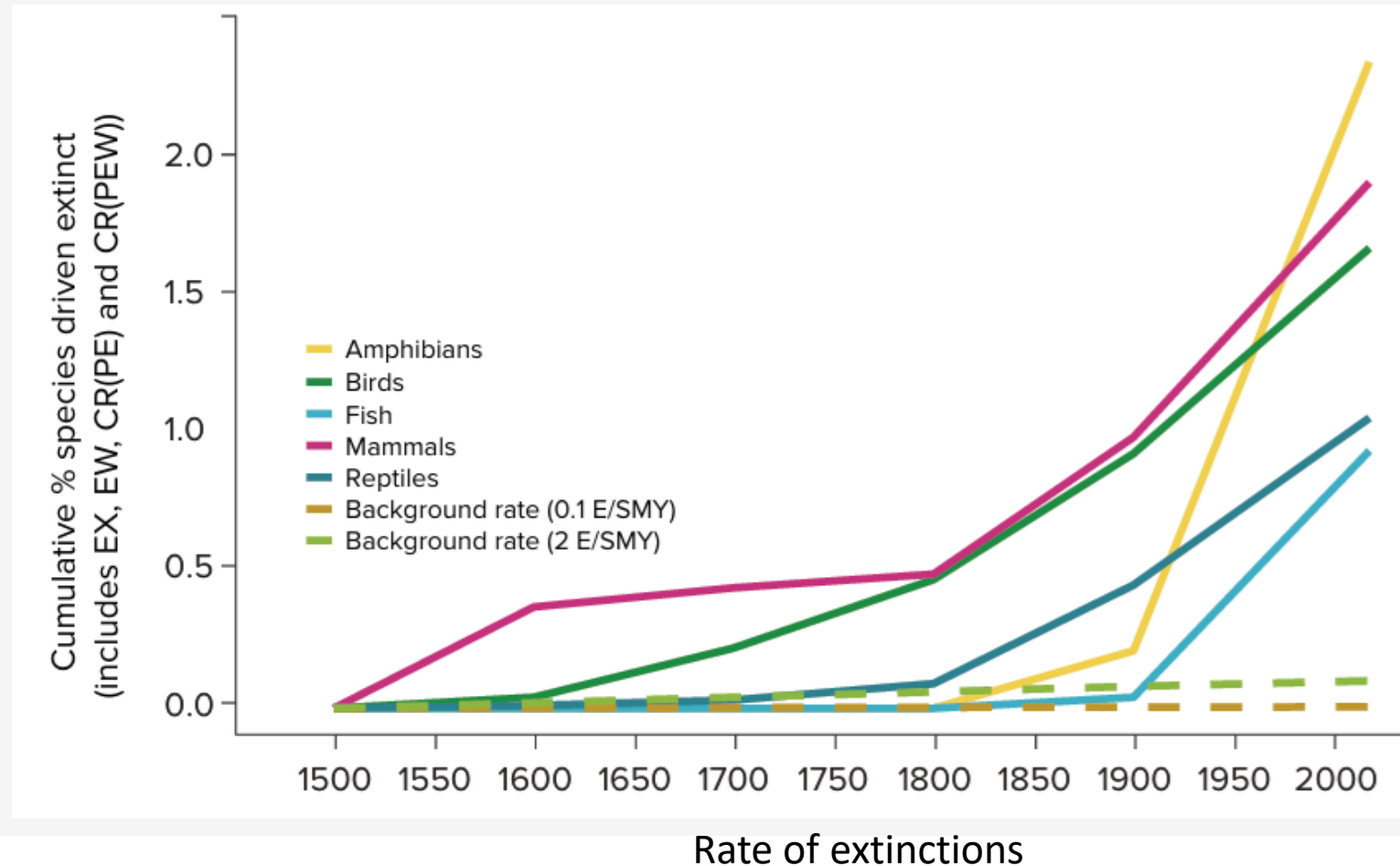
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- history of amphibian IWT (International Wildlife Trade).
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Malagasy amphibian trade

WWF Living planet report (2024)

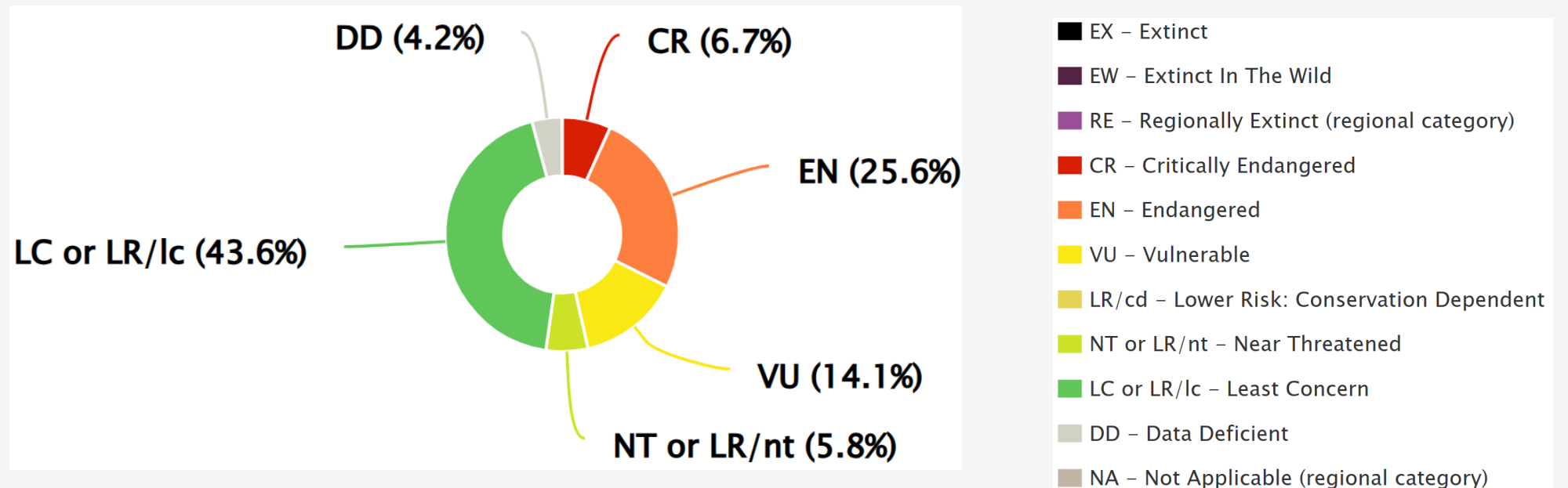
Globally:
the cumulative
number of
species known to
have gone extinct
(WWF 2024)



Malagasy amphibian trade

IUCN Red List

- currently >365 Malagasy amphibian species formally recognised.
- 312 listed on IUCN RedList (searched 22/11/2023).



Malagasy amphibian trade

IUCN Red List

<i>Gephyromantis tschenki</i>	↓ Decreasing	Global	LC
<i>Gephyromantis tahotra</i>	↓ Decreasing	Global	VU
<i>Guibemantis liber</i>	Unknown	Global	LC
<i>Guibemantis pulcher</i>	↓ Decreasing	Global	LC
<i>Boophis quasiboehmei</i>	↓ Decreasing	Global	NT
<i>Boophis andreonei</i>	↓ Decreasing	Global	VU

<i>Boophis fayi</i>	↓ Decreasing	Global	VU
<i>Boophis haingana</i>	↓ Decreasing	Global	EN
<i>Boophis baetkei</i>	↓ Decreasing	Global	CR
<i>Boophis schuboeae</i>	↓ Decreasing	Global	EN
<i>Boophis arcanus</i>	↓ Decreasing	Global	EN
<i>Boophis pyrrhus</i>	↓ Decreasing	Global	LC
<i>Mantidactylus zolitschka</i>	↓ Decreasing	Global	CR
<i>Aglyptodactylus madagascariensis</i>	↓ Decreasing	Global	LC
<i>Boophis erythrodactylus</i>	↓ Decreasing	Global	LC
<i>Mantidactylus aerumnalis</i>	↓ Decreasing	Global	LC

<i>Boophis madagascariensis</i>	↓ Decreasing	Global	LC
<i>Boophis rappiodes</i>	↓ Decreasing	Global	LC
<i>Mantidactylus grandidieri</i>	↓ Decreasing	Global	LC
<i>Boophis williamsi</i>	↓ Decreasing	Global	CR
<i>Mantidactylus mocquardi</i>	Unknown	Global	LC
<i>Boophis albilabris</i>	↓ Decreasing	Global	LC
<i>Heterixalus punctatus</i>	— Stable	Global	LC
<i>Mantella haraldmeieri</i>	↓ Decreasing	Global	EN
<i>Scaphiophryne boribory</i>	↓ Decreasing	Global	VU
<i>Mantella crocea</i>	↓ Decreasing	Global	VU
<i>Mantella milotympanum</i>	↓ Decreasing	Global	CR
<i>Ptychadena mascareniensis</i>	Unknown	Global	LC
<i>Mantella baroni</i>	Unknown	Global	LC
<i>Heterixalus betsileo</i>	— Stable	Global	LC
<i>Mantella cowanii</i>	Unknown	Global	EN
<i>Mantella pulchra</i>	↓ Decreasing	Global	NT
<i>Mantella madagascariensis</i>	↓ Decreasing	Global	VU
<i>Dyscophus antongilii</i>	↓ Decreasing	Global	LC
<i>Plethodontohyla tuberata</i>	↓ Decreasing	Global	NT
<i>Cophyla tsaratananaensis</i>	↓ Decreasing	Global	EN

<i>Cophyla tetra</i>	↓ Decreasing	Global	EN
<i>Mantella expectata</i>	↓ Decreasing	Global	EN
<i>Scaphiophryne gottlebei</i>	↓ Decreasing	Global	EN
<i>Mantella aurantiaca</i>	↓ Decreasing	Global	EN
<i>Guibemantis methueni</i>	↓ Decreasing	Global	LC
<i>Guibemantis timidus</i>	Unknown	Global	LC
<i>Spinomantis tavaratra</i>	↓ Decreasing	Global	VU
<i>Spinomantis brunae</i>	↓ Decreasing	Global	EN
<i>Spinomantis fimbriatus</i>	↓ Decreasing	Global	LC
<i>Guibemantis kathrinae</i>	↓ Decreasing	Global	VU
<i>Spinomantis massi</i>	↓ Decreasing	Global	VU
<i>Guibemantis diphonus</i>	↓ Decreasing	Global	CR
<i>Tsingymantis antitra</i>	Unknown	Global	EN
<i>Spinomantis nussbaumi</i>	↓ Decreasing	Global	CR
<i>Wakea madinika</i>	Unknown	Global	DD
<i>Spinomantis phantasticus</i>	↓ Decreasing	Global	LC
<i>Guibemantis tornieri</i>	↓ Decreasing	Global	LC
<i>Blommersia angolafa</i>	↓ Decreasing	Global	LC
<i>Blommersia kely</i>	Unknown	Global	LC
<i>Blommersia galani</i>	— Stable	Global	LC
<i>Blommersia variabilis</i>	— Stable	Global	LC

<i>Spinomantis elegans</i>	↓ Decreasing	Global	NT
<i>Gephyromantis moseri</i>	↓ Decreasing	Global	LC
<i>Guibemantis punctatus</i>	↓ Decreasing	Global	CR
<i>Gephyromantis ranjomavo</i>	↓ Decreasing	Global	EN
<i>Spinomantis aglavei</i>	↓ Decreasing	Global	LC
<i>Spinomantis guibei</i>	↓ Decreasing	Global	VU
<i>Gephyromantis schilfi</i>	↓ Decreasing	Global	VU
<i>Gephyromantis striatus</i>	↓ Decreasing	Global	VU
<i>Gephyromantis enki</i>	↓ Decreasing	Global	VU
<i>Gephyromantis atsingy</i>	↓ Decreasing	Global	EN
<i>Laliostoma labrosum</i>	— Stable	Global	LC
<i>Gephyromantis ambohitra</i>	↓ Decreasing	Global	VU
<i>Guibemantis flavobrunneus</i>	↓ Decreasing	Global	LC
<i>Gephyromantis leucocephalus</i>	— Stable	Global	NT
<i>Gephyromantis salegy</i>	↓ Decreasing	Global	VU
<i>Gephyromantis sculpturatus</i>	↓ Decreasing	Global	LC
<i>Gephyromantis zavona</i>	↓ Decreasing	Global	EN
<i>Gephyromantis thelenae</i>	↓ Decreasing	Global	EN
<i>Gephyromantis azzurrae</i>	↓ Decreasing	Global	EN
<i>Gephyromantis mafy</i>	↓ Decreasing	Global	CR

Malagasy amphibian trade

amphibian trade

A review of the international trade in amphibians: the types, levels and dynamics of trade in CITES-listed species

ANGUS I. CARPENTER, FRANCO ANDREONE
ROBIN D. MOORE and RICHARD A. GRIFFITHS

Abstract Globally, amphibians face many potential threats, including international trade. However, there is a lack of knowledge regarding the types, levels and dynamics of the amphibian trade at the global scale. This study reviewed the trade in CITES listed species between 1976 and 2007. Four main trade groups (eggs, skins, meat and individuals) were identified. Trade in amphibian leather focused on *Hoplobatrachus tigerinus* (5,572 individuals), whereas trade in eggs focused on *Ambystoma mexicanum* (6,027 eggs). However, for the entire study period (1976–2007), trade in skins and eggs was small compared with trade in meat. The meat trade was estimated to be worth in only three of > USD 111 million, whereas the trade in live animals was estimated to be worth > USD 115 million in only three of the genera involved. Trade dynamics have changed as a result of changes in legislation, such as a ban on *H. tigerinus* exports from Bangladesh for meat. Within the live trade, 23 species categorized as either Critically Endangered or Endangered were traded during the study period, and these require greater attention. International trade and potential conservation benefits are affected by countries supplying captive-bred individuals to their domestic markets as this trade goes unrecorded. However, this study only investigated trade in species listed by CITES, and other species may comprise a significant additional component of international trade. The trade in amphibians is dynamic, and changes in both the types of trade and the species concerned were identified over the study period. Conservation concerns have multiplied from issues concerning population depletions to include indirect impacts associated with disease, predation and competition, which requires a reappraisal of data capture and reporting.

Keywords Amphibians, amphibian conservation, bush meat, CITES, pet trade, wildlife trade

ANGUS I. CARPENTER (Corresponding author) Centre of Ecology, Evolution and Conservation, School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ, UK. E-mail: carper@uea.ac.uk
FRANCO ANDREONE: Amphibian Specialist Group/Museo Regionale di Scienze Naturali, Torino, Italy
ROBIN D. MOORE: Conservation International, Arlington, VA, USA
RICHARD A. GRIFFITHS: Darrell Institute of Conservation and Ecology, School of Anthropology and Conservation, University of Kent, Canterbury, UK

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Amphibian Conservation Action Plan

Proceedings: IUCN/SSG Amphibian Conservation Summit 2005

Edited by Claude Gascon, James P. Collins, Robin D. Moore,
Don R. Church, Jeanne E. McKay and Joseph R. Mendelson III



IUCN Species
ASG
CONSERVATION
INTERNATIONAL

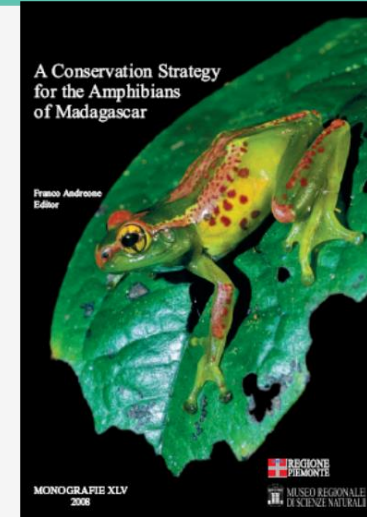
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Malagasy poison frogs in the pet trade: a survey of levels of exploitation of species in the genus *Mantella*

FALITIANA C.E. RABEMANANJARA^{1,2}, NOROMALALA RASOAMAMPIONONA RAMINISOA²,
OLGA RAVOAHANGIMALALA RAMILJAONA², FRANCO ANDREONE³, PARFAIT BORA²,
ANGUS I. CARPENTER⁴, FRANK GLAW⁵, TOKIHERY RAZAFINDRABE², DENIS VALLAN⁶,
DAVID R. VIEITES⁷, AND MIGUEL VENCES^{1*}

¹Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam, Mauritskade 61, 1092 AD Amsterdam, The Netherlands; frabe-man@science.uva.nl ²Département de Biologie Animale, Université d'Antananarivo, BP 906, 101 Antananarivo, Madagascar ³Museo Regionale di Scienze Naturali, Via G. Giolitti 36, I-10123 Torino, Italy; f.andreone@libero.it ⁴Centre for Ecology, Evolution and Conservation (CEEC), School of Environmental Sciences, University of East Anglia, Norwich NR4 7TJ, UK; Chameleon.project@uea.ac.uk ⁵Zoologische Staatssammlung, Münchenstr. 21, 81247 München, Germany; frank.glaw@zsm.mvn.de ⁶Natur-Museum Lucern, Kasernenplatz 6, CH-6003 Lucern, Switzerland; denis.vallan@lu.ch ⁷Museum of Vertebrate Zoology and Department of Integrative Biology, 3101 Valley Life Sciences Building, University of California, Berkeley, CA 94720-3160, USA; vieites@berkeley.edu

Abstract.—Malagasy poison frogs of the genus *Mantella* are small, colorful amphibians that are in high demand for the pet trade. *Mantella aurantiaca* was included in CITES Appendix II in February 1995 and the whole genus included in Appendix II in 2000. CITES Annual report data indicate reported exports of about 230,000 specimens from 1994 to 2003. The reported trade in the most prominent species, *M. aurantiaca*, increased sharply from 1996 to 1998, with more than 30,000 specimens exported in 1998, but dropped after the implementation of an unofficial quota system in Madagascar. Limited information exists on their distribution, habitat preferences and impacts from potential threats, such as harvesting for commerce, and several species are currently listed as Critically Endangered. Based on field surveys of the trade network, the benefits obtained by local collectors were low (equivalent to 0.05–0.20 US\$ per specimen), with usually 100 frogs



Amphibian and Reptile Conservation 5(1):3-16.
DOI: 10.1514/journal.arc.0050020 (5604KB PDF)

Harold Heatwole · Mark-Oliver Rödel (Editors)

Status and Threats of Afrotropical Amphibians

Amphibian Biology, Volume 11, Part 7
Status of Conservation and Decline of Amphibians: Eastern Hemisphere



Edition Chimaira



CHAPTER 4 (Chapter 85 of series).
AMPHIBIAN CONSERVATION IN MADAGASCAR: OLD AND NOVEL THREATS FOR A PECULIAR FAUNA. FRANCO ANDREONE,
ANGUS I. CARPENTER, ANGELICA CROTTINI, NEIL D'CRUZE, NICOLAS DUBO, DEVIN EDMONDS, GERARDO GARCIA, JENNIFER LUEDTKE,
STEVEN MEGSO, FALITIANA C. E. RABEMANANJARA, CHRISTIAN RANDRIANANTOANDRO, ROMA RANDRIANAVELONA, JANINE ROBINSON,
DENIS VALLAN and GONÇALO M. ROSA

Malagasy amphibian trade

Malagasy wildlife trade (all fauna)

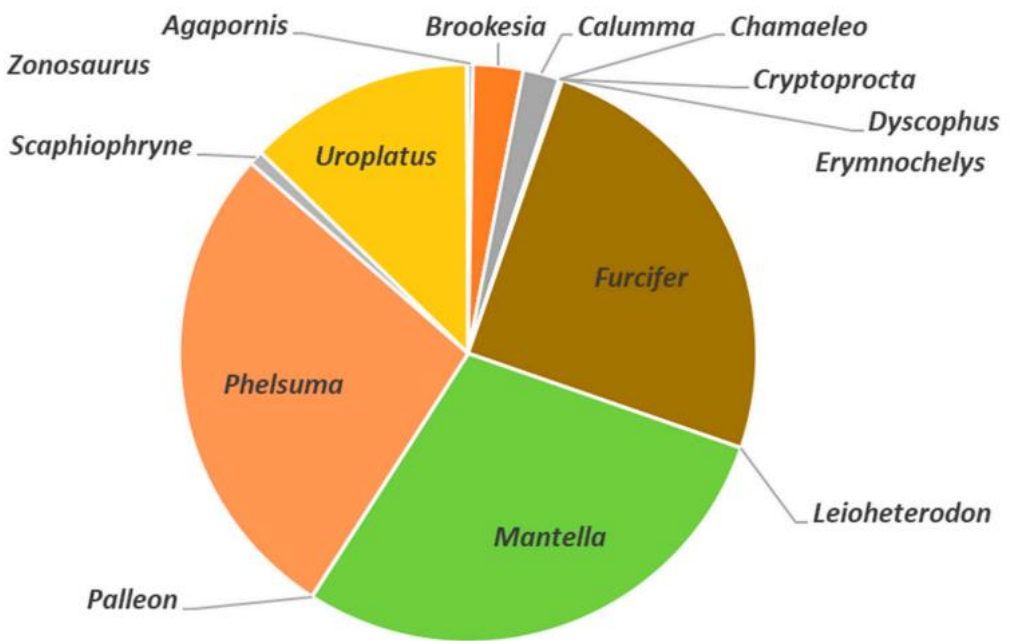


Article
Valorisation of Madagascar's Wildlife Trade and Wildlife Tourism: What Are the Conservation Benefits?

Angus I. Carpenter ^{1,*} and Franco Andreone ²

¹ Institute of Science and Environment, University of Cumbria, Ambleside Campus, Rydal Road, Ambleside LA22 9BB, UK
² Museo Regionale di Scienze Naturali, Via G. Giolitti, 36, I-10123 Torino, Italy; franco.andreone@...
* Correspondence: a...

Abstract: Wildlife t... aligning, income ge... sets collated from M... to 2018, this study es... Between 2007 and 2... up to a high of USE... to benefit local com... the estimated econo... 72,299.80 for the peri...



Does not include non-CITES listed species!

top genera traded

Genus	Species	No.	%
AMPHIBIANS			
Mantella	Mantella betsileo	68,798	
	Mantella baroni	22,737	33.0
	Mantella nigricans	21,110	30.7
	Mantella pulchra	7306	10.6
Phelsuma	Phelsuma lineata	5969	8.7
	Phelsuma quadriocellata		
	Phelsuma laticauda		
	Phelsuma madagascariensis		
REPTILES			
Uroplatus	Uroplatus sikorae	65,329	
	Uroplatus fimbriatus	17,939	27.5
	Uroplatus phantasticus	15,534	23.8
	Uroplatus ebenai	14,124	21.6
Brookesia	Brookesia superciliaris	10,563	16.2
	Brookesia stumpffi		
	Brookesia thieli		
	Brookesia therezieni		
Furcifer	Furcifer pardalis	30,335	
	Furcifer lateralis	10,059	33.2
	Furcifer oustaleti	6170	20.3
	Furcifer verrucosus	5002	16.5

Malagasy amphibian trade

Amphibian species traded



animals




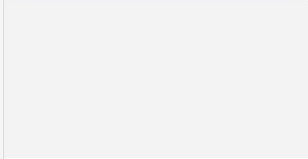


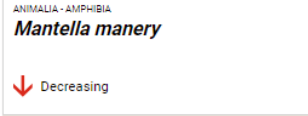

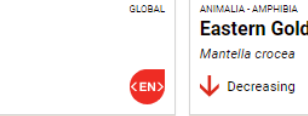
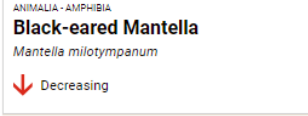

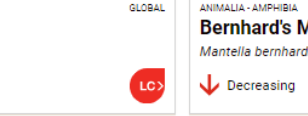
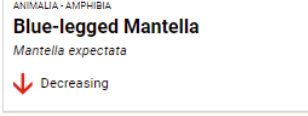

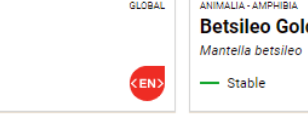
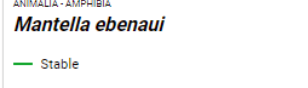
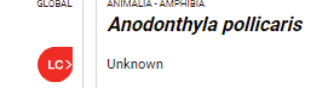


Article

Malagasy Amphibian Wildlife Trade Revisited: Improving Management Knowledge of the Trade

Angus I. Carpenter ^{1,*} and Franco Andreone ²

Amphibian Species	Total Traded	% of Trade
<i>Mantella aurantiaca</i>	64,745	23.89
<i>Mantella betsileo</i>	38,930	14.37
<i>Mantella baroni</i>	29,805	11.00
<i>Mantella madagascariensis</i>	24,753	9.14
<i>Mantella pulchra</i>	21,147	7.80
<i>Mantella spp.</i>	20,343	7.51
<i>Mantella laevigata</i>	15,068	5.56
<i>Mantella viridis</i>	12,056	4.45
<i>Mantella nigricans</i>	9842	3.63
<i>Mantella expectata</i>	9096	3.36
<i>Mantella crocea</i>	8018	2.96
<i>Mantella milotympanum</i>	6043	2.23
<i>Scaphiophryne gottlebei</i>	4130	1.52
<i>Mantella bernhardi</i>	1883	0.69
<i>Mantella cowanii</i>	1667	0.62
<i>Dyscophus guineti</i>	1021	0.38
<i>Mantella haraldmeieri</i>	940	0.35
<i>Dyscophus insularis</i>	731	0.27
<i>Scaphiophryne spinosa</i>	410	0.15
<i>Scaphiophryne marmorata</i>	195	0.07
<i>Dyscophus antongilii</i>	95	0.04
<i>Dyscophus spp.</i>	45	0.02

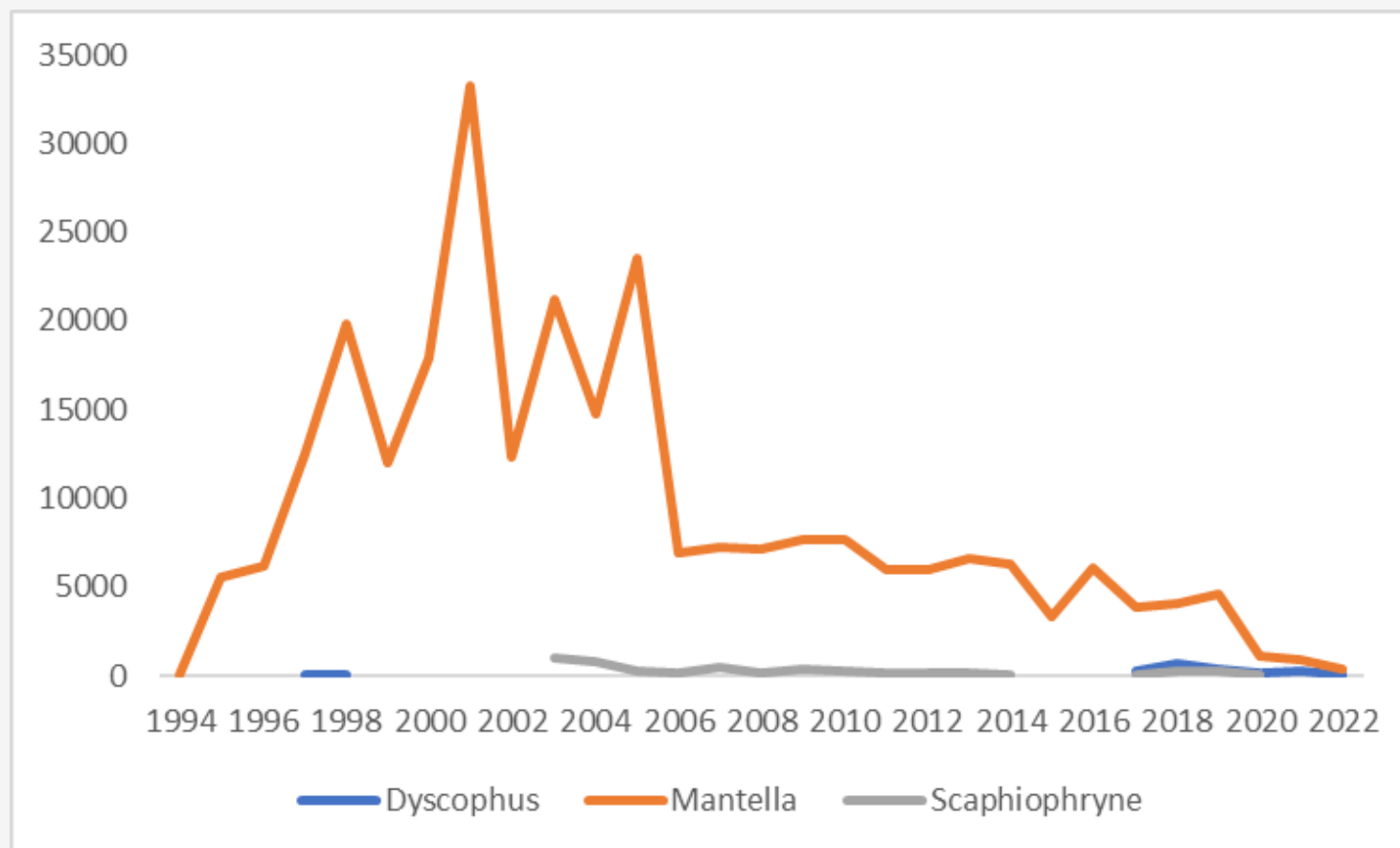
 Baron's Mantella <i>Mantella baroni</i> Unknown	 Parker's Golden Frog <i>Mantella pulchra</i> Decreasing	 Madagascan Mantella <i>Mantella madagascariensis</i> Decreasing
 Folohy Golden Frog <i>Mantella laevigata</i> Decreasing	 Golden Mantella <i>Mantella aurantiaca</i> Decreasing	 Haraldmeier's Mantella <i>Mantella haraldmeieri</i> Decreasing
 Mantella manery Decreasing	 Cowan's Mantella <i>Mantella cowanii</i> Unknown	 Eastern Golden Frog <i>Mantella crocea</i> Decreasing
 Black-eared Mantella <i>Mantella milotympanum</i> Decreasing	 Guibé's Mantella <i>Mantella nigricans</i> Decreasing	 Bernhard's Mantella <i>Mantella bernhardi</i> Decreasing
 Blue-legged Mantella <i>Mantella expectata</i> Decreasing	 Green Golden Frog <i>Mantella viridis</i> Decreasing	 Betsileo Golden Frog <i>Mantella betsileo</i> Stable
 Mantella ebenau Stable	 Anodonthyla pollicaris Unknown	

Malagasy amphibian trade

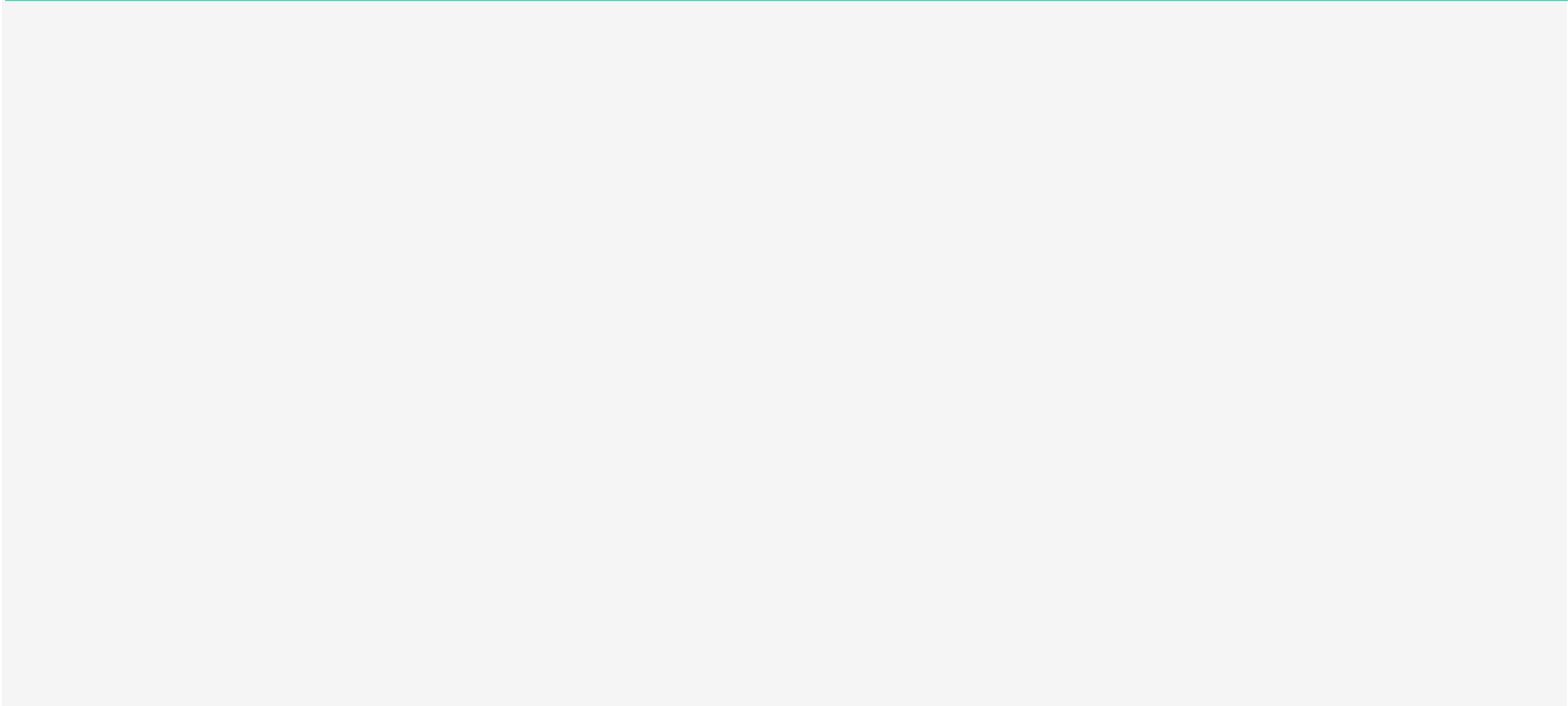
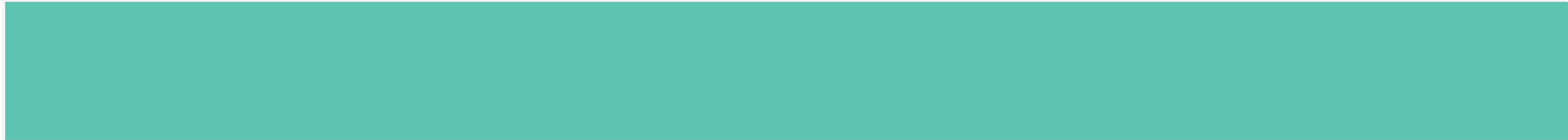
trade patterns

(CITES data @ 23/11/2023)

Year Range:	From: 1975 To: 2023
Exporting countries:	Madagascar
Importing countries:	All Countries
Source:	W - Wild, R - Ranched, F - Born in captivity (F1 and subsequent), U - Source unknown
Purpose:	T - Commercial
Trade Terms:	BOD - bodies, LIV - live, SPE - specimens
Species:	Amphibia (Amphibians)



Does not
include non-
CITES listed
species!

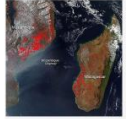


this session

- Madagascar; background info & setting the scene.
- history of amphibian IWT (International Wildlife Trade).
- conservation going forward (pressures &/or progress).

amphibian conservation going forward

setting the scene / tensions



Ways of trading



Madagascar presidential aide charged with seeking £225,000 bribe in UK



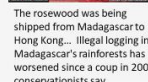
Madagascar's scramble for sapphires



Madagascar lychee trade mired in corruption ... "Most profits of the lucrative lychee trade between Madagascar and the EU are concentrated in the hands of a few powerful and politically-connected individuals".



Rosewood: Kenya seizes illegal Hong Kong-bound cargo



The rosewood was being shipped from Madagascar to Hong Kong... Illegal logging in Madagascar's rainforests has worsened since a coup in 2009, conservationists say.



setting the scene / tensions



Politics & commitments

Madagascar minister calls protected areas a 'failure', seeks people-centric approach

By Ronald Ratsimbazafy and Mafahy Razafimanantsoa on 20 August 2020

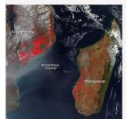


"The conservation of our biodiversity through Madagascar protected areas' system for 30 years was a failure..."

We have to change the paradigm and to move toward a system which doesn't exclude humans and doesn't put local communities on the side lines; it should be deeply social."

<https://www.earthranger.com/2020/08/madagascar-minister-calls-protected-areas-a-failure-seeks-people-centric-approach/>

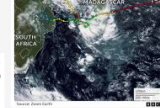
setting the scene / tensions



Drought & Cyclones



"25 people died... 21 are missing... 40,000 homeless" BBC News

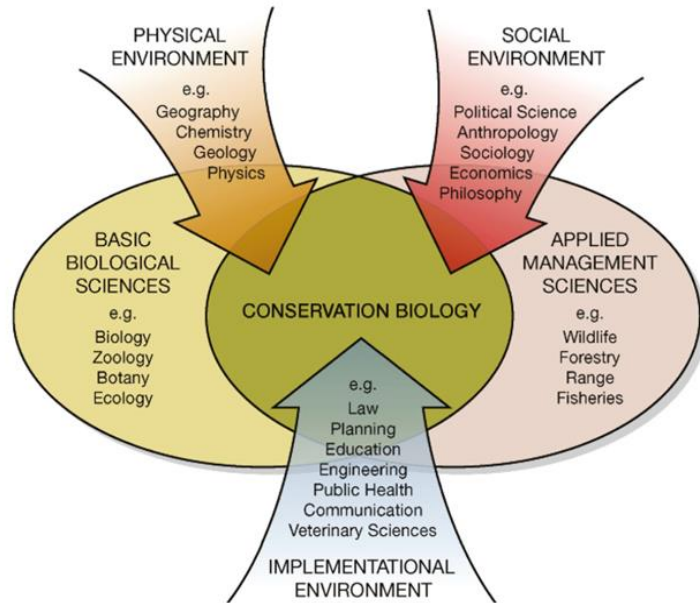


Madagascar: 1.5m face hunger because of drought, UN says

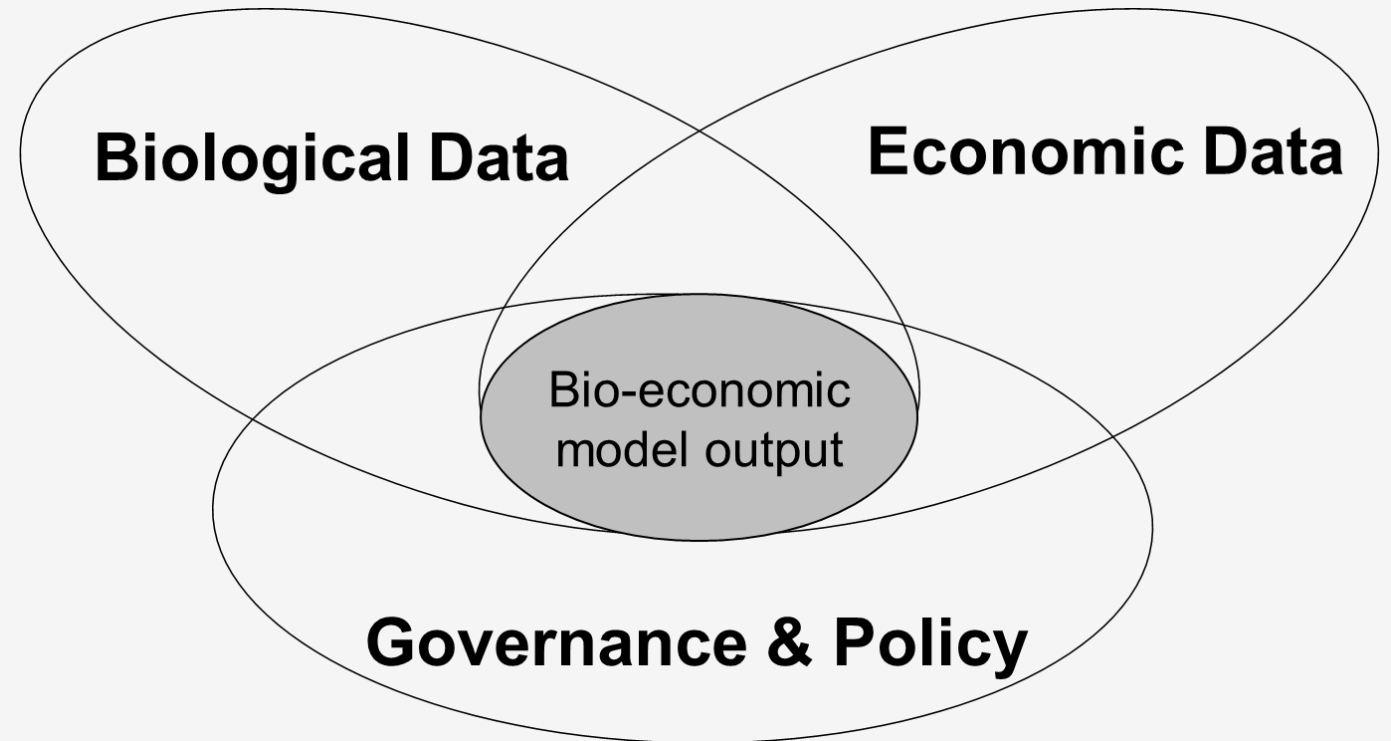
Madagascar: 1.5m face hunger because of drought, UN says



amphibian conservation going forward



(extracted from Hunter *et al.*, 2021)



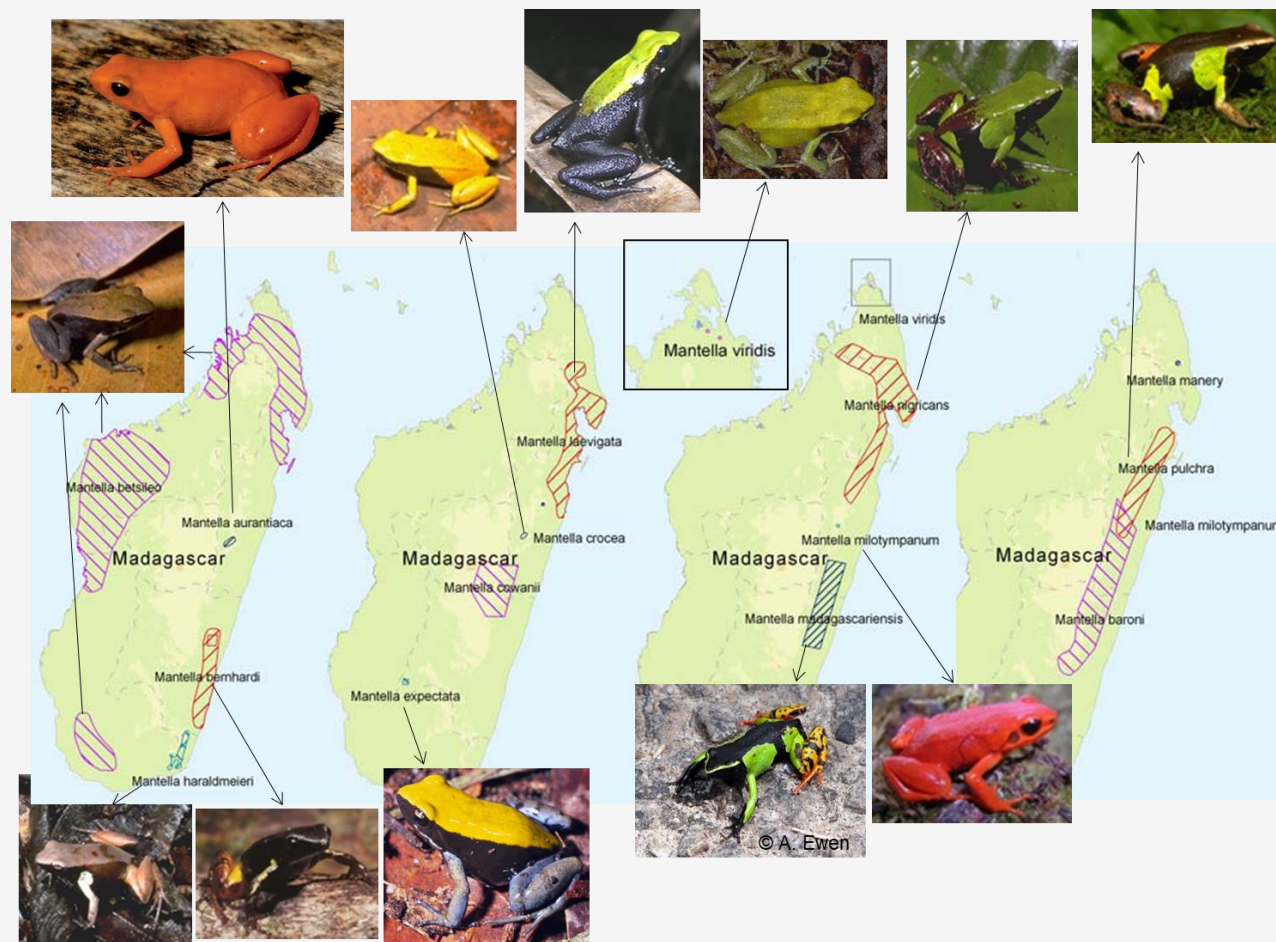
Malagasy amphibian trade

biology / species distributions

Dyscophus antongilii

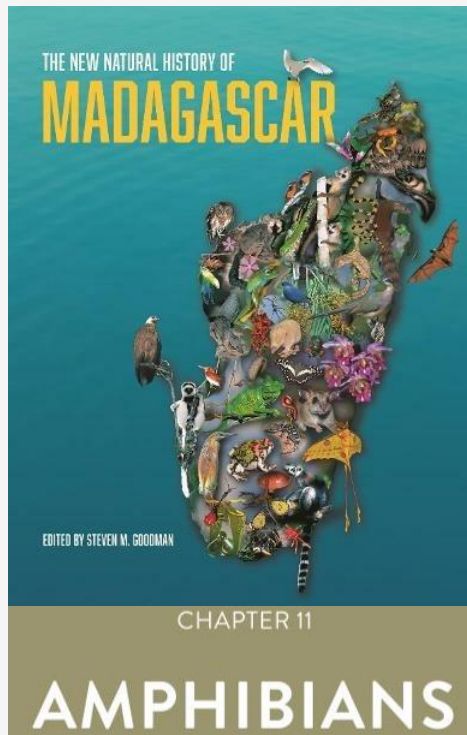


Scaphiophryne gottlebei



Malagasy amphibian trade

biology / breeding ecology



Aquatic eggs

- Eggs deposited in water

Mode 1. Eggs and feeding (exotrophic) tadpoles in lentic water (*Ptychadena*, *Heterixalus*, *Hoplobatrachus*, *Laliostoma*, *Dyscophus*, *Scaphiophryne*, *Paradoxophyla*, *Aglyptodactylus*, and subgenus *Sabona* in *Boophis*).

2. Eggs and feeding (exotrophic) tadpoles in lotic water (other species of *Boophis*).

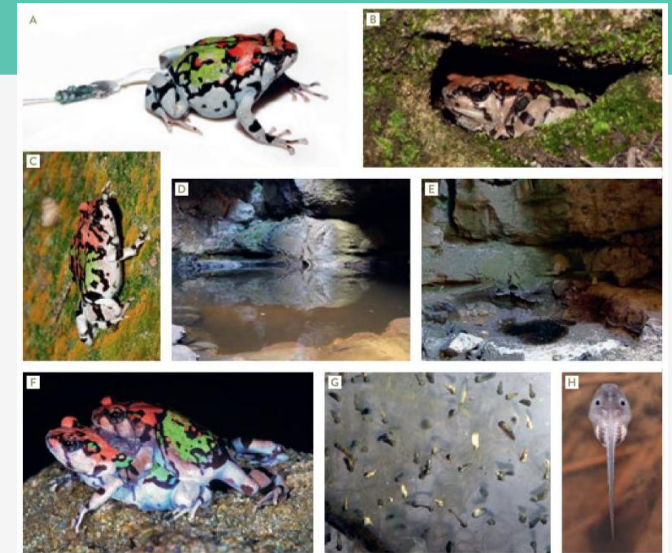
8. Eggs and nonfeeding (endotrophic) tadpoles in water in tree holes or aerial plants (*Anodonthyla*, *Cophyla*, *Platypelis*, several *Plethodontohyla* species including *P. notosticta*, *P. inguinialis*, and *P. mihanika*), or in cavities such as snail shells (some *Stumpffia*).

Eggs terrestrial or arboreal (not in water)

- Eggs on ground, on rocks, or in burrows

17. Eggs and early tadpoles in excavated nest; subsequent to flooding (e.g., after heavy rains), feeding (exotrophic) tadpoles live in ponds or streams (*Mantella* except *M. laevigata* and *M. expectata*, *Mantidactylus* subgenera *Brygoomantis*, *Chonomantis*, *Ochthomantis*, and perhaps *Hylobatrachus* and *Mantidactylus*).

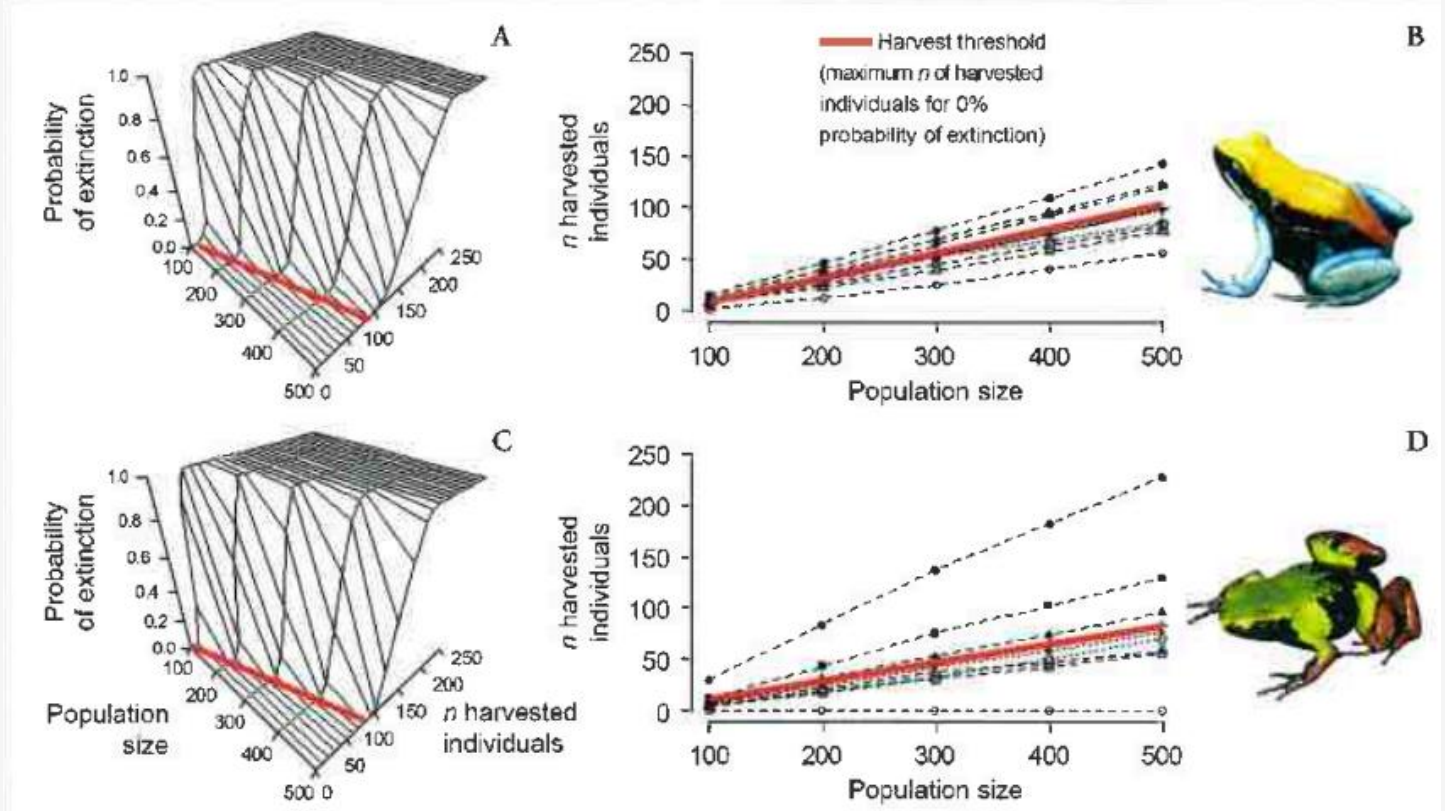
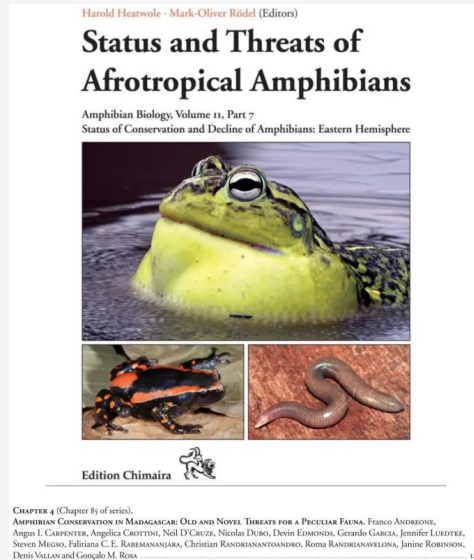
SPECIES	MEAN CLUTCH SIZE
<i>Anodonthyla pollicaris</i>	28.5
<i>Blommersia blommersae</i>	74.6
<i>Boophis pyrrhus</i>	82.6
<i>Gephyromantis boulengeri</i>	8.2
<i>Guibemantis</i> aff. <i>albolineatus</i>	17.3
<i>Mantella aurantiaca</i>	69.4
<i>Mantidactylus betsileanus</i>	67.2
<i>Platypelis barbouri</i>	26.2
<i>Plethodontohyla mihanika</i>	52.0



Natural history and spatial ecology of *Scaphiophryne gottlebei*. Years of research in the canyons of the Isalo Massif have unveiled some secrets of this elusive species. A) Radio-tracking individuals allowed us to better understand movements and dispersal, and B) to discover where these frogs hide and seek refuge. C) This species is highly adapted to live in narrow canyons, as it can climb up vertical walls. D) These are also extremely seasonal breeding habitats, with temporary water basins formed after the first heavy rains that E) dry out afterward. F) Males and females aggregate to breed, and G) and H) the hatching psammonektonic larvae will develop in a race against time to complete their metamorphosis.

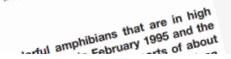
Malagasy amphibian trade

draft sustainable harvest levels



trade structure & economic data

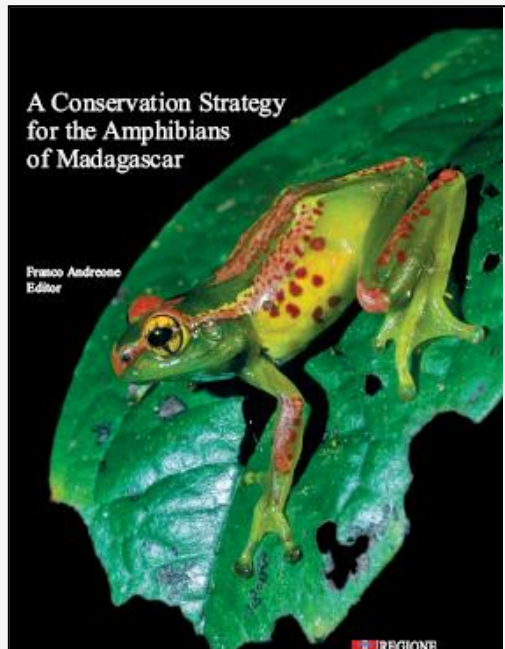
Abstract.—Malagasy poison frogs of the demand for the pet trade. *Mantella auranti* whole genus included in Appendix II in 230,000 specimens from 1994 to 2003. The increased sharply from 1996 to 1998, with the implementation of an unofficial quota tion, habitat preferences and impacts for species are currently listed as Critically its obtained by local collectors were 1.



2018	Price	Value	Grand Total
703			71,050
110	0.3	33	342
593	0.13	77.09	68,798
	0.3	0	1910
			4
		0	4
100			650
100	0.36	36	650
2592			167,131
235	0.3	70.5	6686
28	0.3	8.4	4871
	0.3	0	10
958	0.3	287.4	59,722
	0.3	0	32
1305	0.3	391.5	65,329
41	0.3	12.3	30,335
25	0.3	7.5	146
			21
	0.3	0	21
			105
	0.3	0	105
3395		923.69	238,961

amphibian conservation going forward

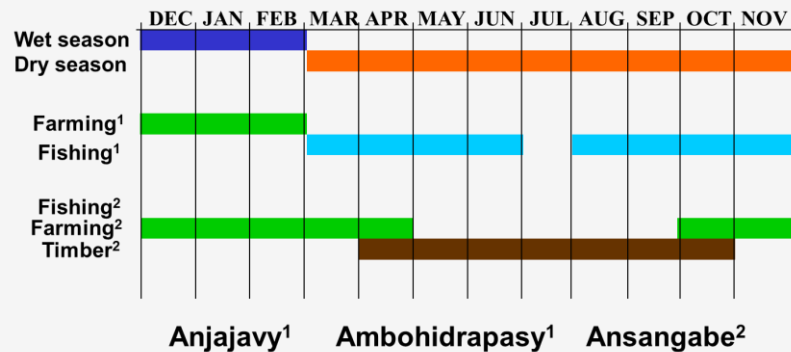
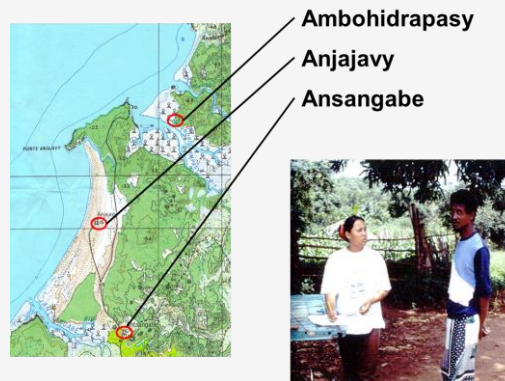
socio-economic profile



A Conservation Strategy for the Amphibians of Madagascar Monografie del Museo Regionale di Scienze Naturali di Torino, XLV (2008): pp. 357-376

Angus I. CARPENTER¹, Onja ROBSON²

Madagascan amphibians as a wildlife resource and their potential as a conservation tool: species and numbers exported, revenue generation and bio-economic model to explore conservation benefits



Timber -	Palisander:	£2 tree ⁻¹	20	£40
	Other timber:	50p tree ⁻¹	40	£20
	Transport:	38p shipment ⁻¹	6	£2.28
Farming -	Valley rice:	28p kg ⁻¹	1500 kg	£420
	Hill rice:	28p kg ⁻¹	500 kg	£140
	Maize:	2p cob ⁻¹	800	£16
		35p kg ⁻¹	500 kg	£175
	Manioc:	20p kg ⁻¹	500 kg	£100
	Bananas:	25p tamgozany ⁻¹	800	£200
	Coconuts:	10p coconut ⁻¹	800	£80
	Honey:	50p litre ⁻¹	50 litre	£25
	Mangos:	£1.50 rum	100 litre	£150
		2p each	500	£10

Total - £493.28 (\$720.19)

Harvester's revenue = Harvester's costs

➡ Economic costs / harvest No. = price unit⁻¹

↳ \$ 720.19 / 2000 = \$ 00.36 price unit⁻¹

amphibian conservation going forward

institutional governance / demand declines

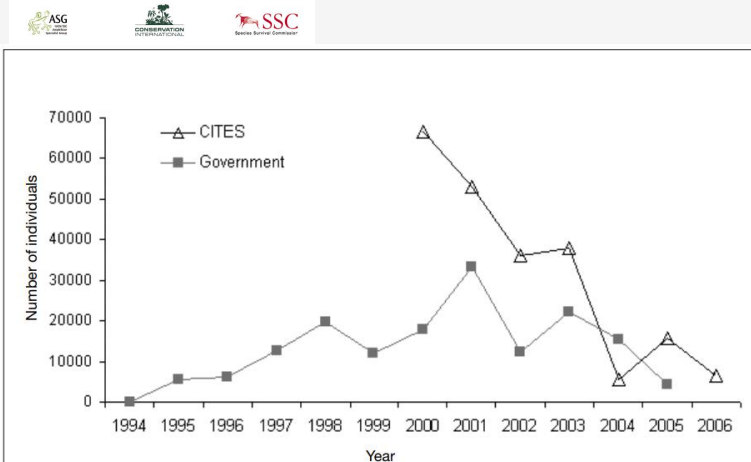
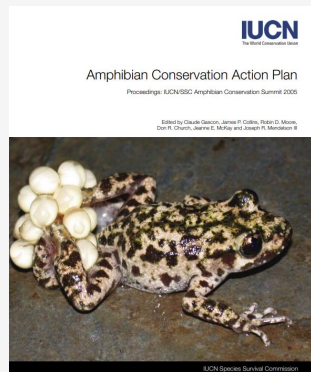
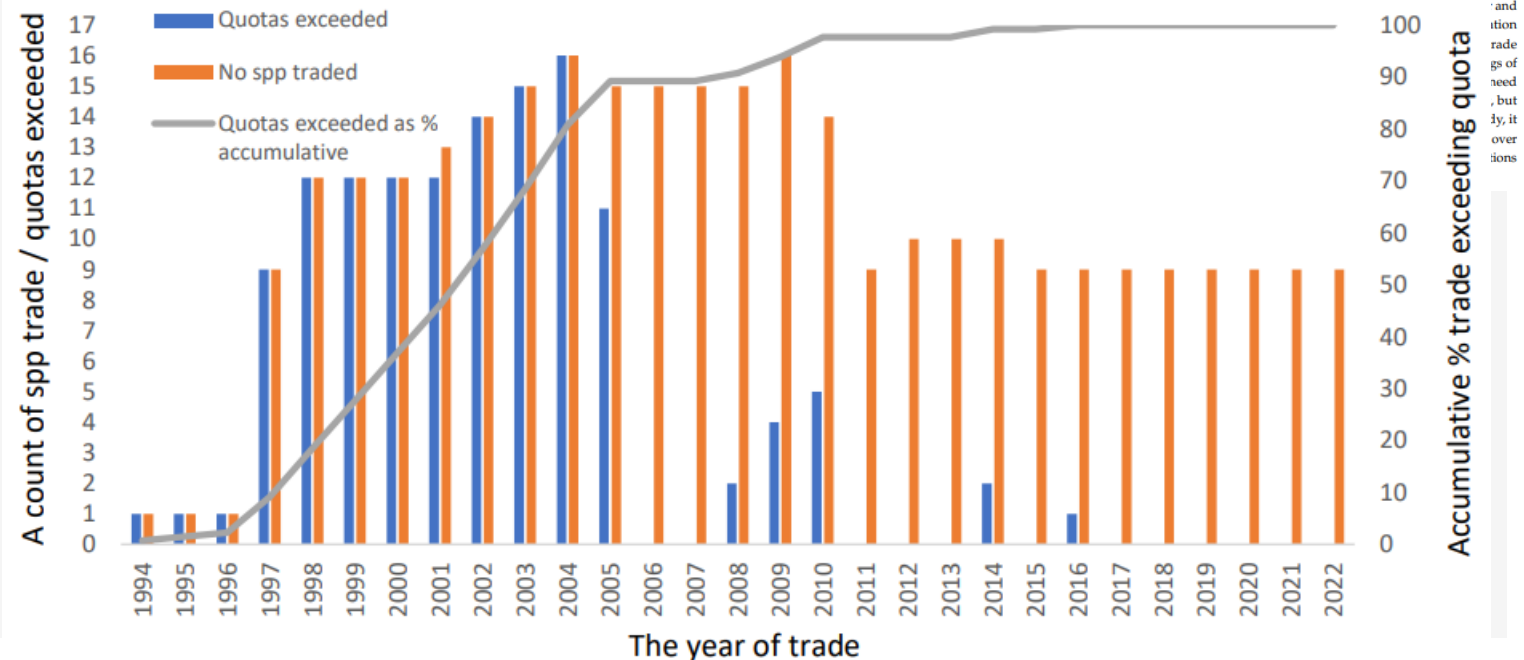
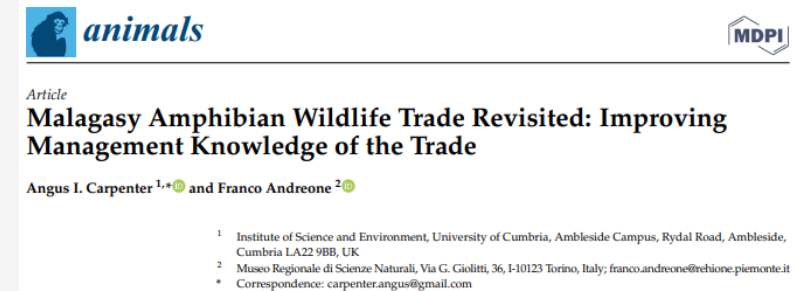
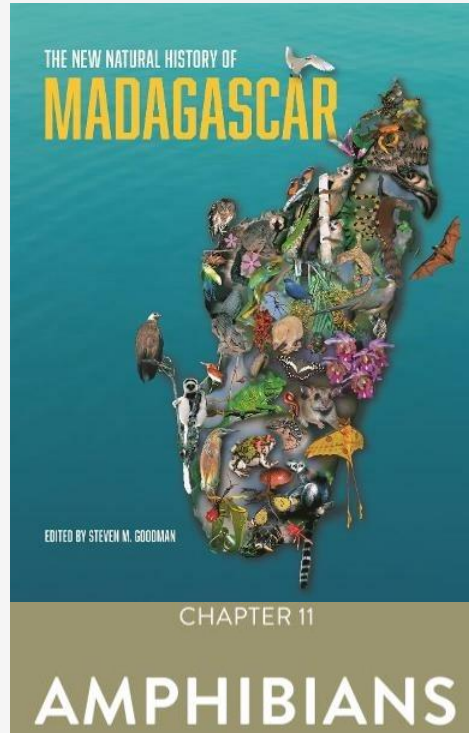


Figure 5.1. Trading trends for the number of individuals of amphibians exported between 1994 and 2006 for both CITES and Malagasy government dataset.



amphibian conservation going forward



- currently >365 Malagasy amphibian species formally recognised.
- the number will increase as 100–150 candidate species already identified but not yet assessed and scientifically named.
- predicted that Madagascar will host >500 amphibian species.
- considering scientifically named species only, Madagascar holds ~4.5% of the world's amphibian fauna.

amphibian conservation going forward

drivers of trade

Raptors:

... hobbyists and small falconry groups were found to be the predominant drivers of sales... .

[Panter & White. 2020. Insights from social media into the illegal of wild raptors in Thailand. *Traffic Bulletin*, 32](#)

Reptiles:

The pursuit of novelty ... species include numerous endangered or range-restricted species...
Exploitation can occur immediately after scientific description, leaving new endemic species especially vulnerable.

[Marshall, et al., 2020. Thousands of reptile species threatened by under-regulated global trade. *Nature Communications*, 11, 4738](#)

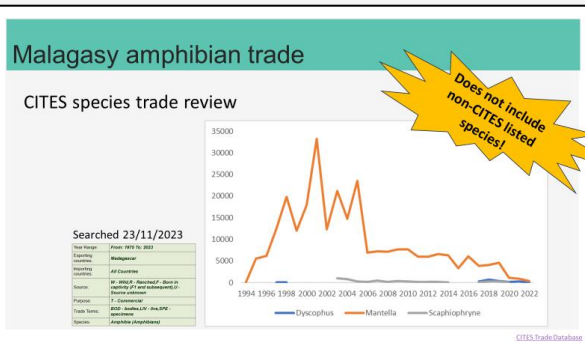
Reptiles & Amphibians:

In the last few decades, exotic pets have become much more common. In the UK in 2008, reptiles and amphibians were more popular than dogs, with over eight million in captivity. But while almost all pet cats and dogs are born and bred in captivity, exotic pets are often taken from the wild, putting species and their habitats at risk.

[Hughes, et al., 2021. Gaps in global wildlife trade monitoring leave amphibians vulnerable. *eLife.*, 10: e70086](#)

amphibian conservation going forward

zoo CB programs

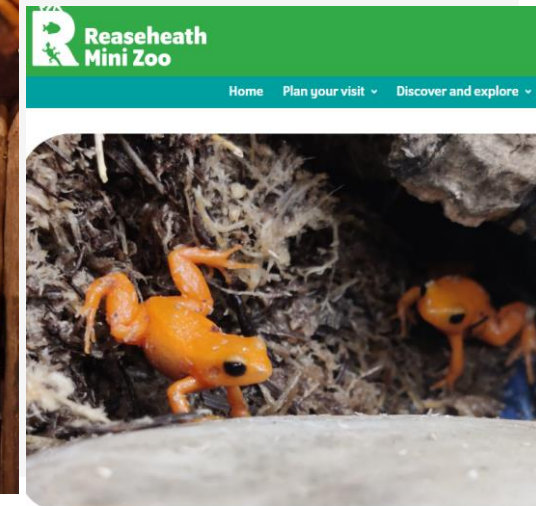


News | 10 Oct, 2023



IUCN Species Survival Commission acknowledges vital contributions of Botanic Gardens, Aquariums, and Zoos to wildlife conservation

The IUCN Species Survival Commission Position Statement on the Role of Botanic Gardens, Aquariums, and Zoos in Species Conservation recognizes the leading role that these organisations already play in the science and practice of conservation, and invites others to reach their full potential, working alongside governments and key partners to collectively achieve IUCN's One Plan Approach."

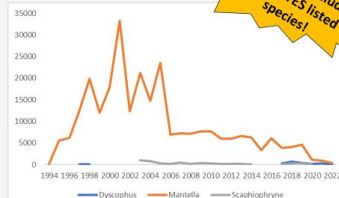


amphibian conservation going forward

zoo CB programs

Malagasy amphibian trade

CITES species trade review



Searched 23/11/2023

Year Range: From 1970 To 2023
Country: Madagascar
Species: All countries
Source: IUCN Red List, IUCN Red List of Threatened Species, IUCN Red List of Threatened Species, IUCN Red List of Threatened Species
Purpose: IUCN Red List of Threatened Species
Trade Status: IUCN Red List of Threatened Species
Species: IUCN Red List of Threatened Species

CITES Trade Database



News | 10 Oct, 2023

IUCN Species Survival Commission acknowledges vital contributions of Botanic Gardens, Aquariums, and Zoos to wildlife conservation

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Convention on International Trade in Endangered Species of Wild Fauna and Flora

Espan

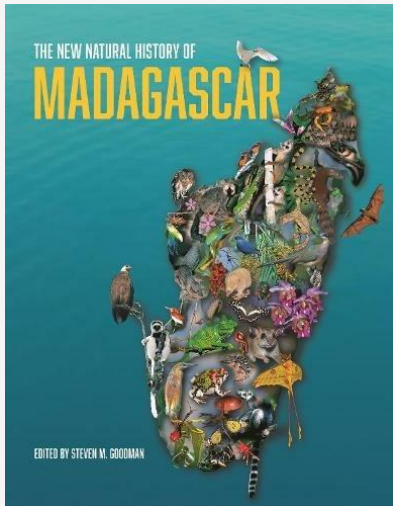
New Search

Comparative Tabulation Report

Year	App.	Taxon	Class	Order	Family	Genus	Importer	Exporter	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Purpose	Source
2010	I	Prolemur simus	Mammalia	Primates	Lemuridae	Prolemur	MG	GB		1		live		S	C
2016	I	Neofelis nebulosa	Mammalia	Carnivora	Felidae	Neofelis	MG	GB	DE	1	1	live		B	C
2016	I	Neofelis nebulosa	Mammalia	Carnivora	Felidae	Neofelis	MG	GB	DE	1		live		Z	C
2016	II	Prionailurus rubiginosus	Mammalia	Carnivora	Felidae	Prionailurus	MG	GB			2	live		B	C
2016	II	Prionailurus rubiginosus	Mammalia	Carnivora	Felidae	Prionailurus	MG	GB		2		live		Z	C
2017	I	Osteolaemus tetraspis	Reptilia	Crocodylia	Crocodylidae	Osteolaemus	MG	GB			4	live		B	C

amphibian conservation going forward

CB on Madagascar



MITSINJO CAPTIVE-BREEDING FACILITY



FIGURE 11.8 The main room of the Mitsinjo amphibian captive-breeding facility near Andasibe. Terraria in the photo house *Mantella aurantiaca*. (PHOTO by D. Edmonds.)

TABLE 11.2. Amphibian species maintained at Mitsinjo's amphibian captive-breeding facility since 2011

SPECIES	BRED TO F1	BRED TO F2
<i>Anodonthyla pollicaris</i>	X	–
<i>Blommersia blommersae</i>	X	–
<i>Boophis bottae</i>	X	–
<i>B. pyrrhus</i>	X	–
<i>Dyscophus guineti</i>	–	–
<i>Gephyromantis boulengeri</i>	X	–
<i>Guibemantis</i> aff. <i>albolineatus</i>	X	–
<i>G. pulcher</i>	–	–
<i>Heterixalus betsileo</i>	X	–
<i>H. punctatus</i> ¹	–	–
<i>Mantella aurantiaca</i>	X	X
<i>Mantidactylus betsileanus</i>	X	X
<i>Platypelis barbouri</i>	X	–
<i>Plethodontohyla mihanika</i>	X	–
<i>Stumpffia</i> sp. ¹	–	–

SPECIES
<i>Anodonthyla emilei</i>
<i>A. jeanbai</i>
<i>A. theoi</i>
<i>Boophis baetkei</i>
<i>B. jaegeri</i>
<i>B. williamsi</i>
<i>Cophyla maharipeo</i>
<i>Gephyromantis hintelmannae</i>
<i>G. mafy</i>
<i>Mantella aurantiaca</i>
<i>M. milotympanum</i>
<i>Mantidactylus pauliani</i>
<i>Platypelis alticola</i>
<i>P. mavomavo</i>
<i>P. olgae</i>
<i>Rhombophryne longicrus</i>
<i>Spinomantis brunae</i>
<i>Stumpffia hara</i>
<i>S. staffordi</i>

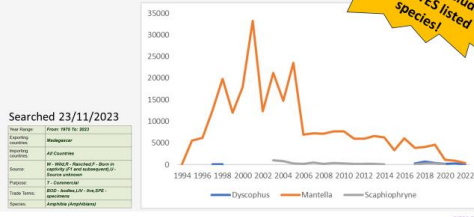
TABLE 11.4. Species recommended for ex situ rescue by the Conservation Needs Assessment

amphibian conservation going forward

Malagasy amphibians for sale

Malagasy amphibian trade

CITES species trade review



£10 GBP

Carterton, England
Aug 3, 2023

Tadpoles available -> Heterixalus alboguttatus (Malagasy starry night reed frog) £15ea or 10 for £120

-> Mantella betsileo £12.50ea or 5 for £50

Also have Mantella betsileo mets emerging from a different bloodline.

Mets are £20ea, or buy 2 mets and 2 tads (so mixed bloodlines) for £50.

Collection or can post tadpoles.

Also happy to consider trades for (tads etc. of): Lemur leaf frog, Theloderma corticale, Theloderma pictum, Theloderma auratum, Mantella sp. (inc. aurantiaca), Dendrobates tinctorious nominat, glass frogs. And, maybe more... So drop any offers over.

Reply Quote Like

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BackwaterReptiles.com

Painted Mantella for Sale
Buy a Painted Mantella (Mantella madagascariensis)

Home Search Shipping Testimonials 7-Day Guarantee FAQ About

SALES@BACKWATERREPTILES.COM FAX: (512) 64

View Cart

Painted Mantella for Sale

Check price: eBay



Painted Mantella

Mantella madagascariensis/baroni

We have some Painted Mantellas for sale at incredible pricing. These exquisite frogs hail from the island of Madagascar, and are also referred to as "Malagasy" Painted Mantellas. When you buy a frog from us, you automatically receive our 100% live arrival guarantee.

Choose: Med-Large - \$79.99

Options: No Pref

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Home > Livestock > Amphibians > Frogs > Tomato frog, *Dyscophus antongilii*

Tomato frog, *Dyscophus antongilii*
Tomato frogs are docile, vibrant coloured and easy to take care of

At a glance...

- Tomato frogs are vibrant coloured,1
- Easy to care for making them begin
- Docile pets that don't need a huge i

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Product *
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from **£35.00**

amphibian conservation going forward

window of opportunity



The disconnect of 'spp : habitat : local people' being replaced by ex-situ supply to trade removes NTFP value of native forests to local communities.
Resulting in more deforestation??



