# Review of species from Madagascar subject to long-standing import suspensions

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**A report to the European Commission**
**Directorate General Environment**
**ENV.E.2. – Environmental Agreements and Trade**

**by the**

**United Nations Environment Programme**
**World Conservation Monitoring Centre**

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The UNEP World Conservation Monitoring Centre (UNEP-WCMC), based in Cambridge, UK, is the specialist biodiversity information and assessment centre of the United Nations Environment Programme (UNEP), run cooperatively with WCMC 2000, a UK charity. The Centre's mission is to evaluate and highlight the many values of biodiversity and put authoritative biodiversity knowledge at the centre of decision-making. Through the analysis and synthesis of global biodiversity knowledge the Centre provides authoritative, strategic and timely information for conventions, countries and organisations to use in the development and implementation of their policies and decisions.

The **UNEP-WCMC** provides objective and scientifically rigorous procedures and services. These include ecosystem assessments, support for the implementation of environmental agreements, global and regional biodiversity information, research on threats and impacts, and the development of future scenarios.

## CITATION

UNEP-WCMC. 2009. *Review of species from Madagascar subject to long-standing import suspensions.* UNEP-WCMC, Cambridge.

## PREPARED FOR

The European Commission, Brussels, Belgium

## DISCLAIMER

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# 1. INTRODUCTION

Import suspensions for some species/country combinations have been in place for a relatively long time. For this reason, it was agreed that a review of species/country combinations subject to long-standing import suspensions be undertaken in order to determine whether or not the suspensions are still appropriate.

Madagascar and Indonesia are the two countries with most EC import suspensions currently in place, with 321 and 73 suspensions respectively. UNEP-WCMC was therefore requested to review species subject to long-standing EC import suspensions (but not subject to other CITES suspensions) from these countries for SRG 49 (Madagascar) and SRG 50 (Indonesia). This report includes a review of all species subject to an EC only import suspension from Madagascar since 2001. *Mantella aurantiaca*, although not subject to suspensions 2002-2004, has also been included for completion.

## 1.1. MADAGASCAR

Madagascar has been a Party to CITES since 1975. In 2001 it was subjected to a country-based review of significant trade, a process which concluded in 2008. In order to improve the implementation of CITES in Madagascar, a coordination workshop was organized in May 2003. Following this workshop, an action plan was drawn up, with five main thrusts: national policy; legislation; the scientific contribution to the decision making process concerning the harvesting of and trade in wild species; the operational procedures for controlling trade in wild species, from harvesting to export; and lastly the implementation of controls.

At the joint PC17/AC23 session (April 2008), Madagascar outlined the actions undertaken in the implementation of the CITES action plan. It was questioned whether Madagascar was yet in a position to make non-detriment findings for all Appendix-II species that were exported, although there was also general acknowledgement that Madagascar had made very good progress in implementation of the action plan. The Committees subsequently agreed that the country-based Review of Significant Trade in Madagascar was now completed.

In addition to the country-based Review of Significant Trade, several species from Madagascar have been through the Review of Significant Trade process, including *Calumma* spp., several *Furcifer* and *Phelsuma* species, and *Mantella* spp.

Out of the 321 EC import suspensions currently in place for Madagascar, 66 have been in place since 2001 (or earlier). 49 of these are also subject to other CITES suspensions. In particular, *Calumma, Furcifer* and *Phelsuma* species are subject to a Standing Committee recommendation to all Parties to suspend imports. The remaining 19 species have been reviewed in this report.

## 2. SPECIES REVIEWS

REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**MAMMALIA EUPLERIDAE**

| | |
|---|---|
| SPECIES: | *Eupleres goudotii* |
| SYNONYMS: | *Eupleres major* |
| COMMON NAMES: | Mierencivetkat (Dutch), Falanouc (English), Malagasy Mongoose (English), Slender Fanalouc (English), Small-toothed Mongoose (English), Falanukki (Finnish), Euplère de Goudot (French), Ameisenschleichkatze (German), Fanaluk (German), Eupleride di goudot (Italian), Fanaloca (Spanish), Mangosta dentipequeno (Spanish), falanok (Swedish), sibetmangust (Swedish) |
| RANGE STATES: | Madagascar |
| RANGE STATE UNDER REVIEW: | Madagascar |
| IUCN RED LIST: | Near Threatened |
| PREVIOUS EC OPINIONS: | Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 22/12/1997 and last confirmed on 21/05/2009. |

**TRADE PATTERNS:**

Apart from a total of 15 live animals reported as exports by Madagascar to South Africa between 2000 and 2001, the only other direct trade ever reported was of scientific specimens going to the United States in 2002.

**CONSERVATION STATUS in range states**

**Madagascar:** *Eupleres goudotii* is a small to medium-sized crepuscular/nocturnal carnivore endemic to Madagascar (Nowak, 1991; Hawkins, 1994; Garbutt, 1999). It has been recorded from the eastern, north-western, and western forests, from sea level to 1,025 m (Hawkins, 2008).

Garbutt (1999) provided the following information on the species' distribution:

> "The Eastern Falanouc *E. g. goudotii* is found in the eastern lowland rainforests and marsh areas dominated by Cyperaceae, *Raphia* and *Pandanus* species, from the Andohahela region in the south to the Marojejy Massif in the north. It seems likely this subspecies's strongholds are the Masoala Peninsula, Mananara and Andohahela regions.

The Western Falanouc *E. g. major* is found from the Tsaratanana Massif in the north-west, south to the northern limits of Ankarafantsika area including the whole of the Sambirano region. In the Sambirano, the Western Falanouc appears to prefer undisturbed forests and wetland areas dominated by *Raphia* and *Aframomum* species. There are also recent records of *Eupleres* (here assumed to be this subspecies) from deciduous forests to the west of Mahajanga: firstly in the Tsiombikibo forests near Mitsinjo (local name 'falanoucy'), and secondly from the Soalala/Baly Bay region (local name 'jabady'). It is not known whether these populations are continuous with the larger one to the north of Ankarafantsika. These sightings represent a considerable southerly extension to the Western Falanouc's range and may indicate that it is far more widely distributed in western areas than can currently be confirmed.

The Falanouc is also found in the humid forests of Montagne d'Ambre in the far north and has been recorded in the drier deciduous forests of the Ankarana Massif to the south of Montagne. Which of the two subspecies these populations represent has yet to be determined."

*E. goudotii* was classified as Near Threatened in the IUCN Red List (Hawkins, 2008) with the following justification:

> "Over the last 10 years, the population reduction of this species based on the combined impacts of habitat loss (especially given its mostly specialized diet and habitat requirements) and widespread hunting and the effects of feral carnivores, is estimated at 20-25%. The loss could be higher, although there is no current comprehensive data to support this. Almost qualifies as threatened under criterion A2cd."

The species was formerly classified as Endangered (Baillie and Groombridge, 1996; Hilton-Taylor, 2000).

Hawkins (2008) reported that "This species is very uncommon across its range, and is seldom found using standard trapping techniques, which could be due to its specialized diet of earthworms. Only in Amber Mountain National Park and Andohahela National Park have individuals been seen regularly." It was assigned a population trend of Decreasing (Hawkins, 2008).

Goodman (2009) reported that "In total, there are fewer than 20 recent locality-based records of the animal, and estimates of the total adult population are impossible to make."

Garbutt (1999) reported that "Although the Falanouc may be locally common in some areas, it appears to be rare or even very rare over most of its range."

*E. goudotii* was included in ZSL (2009) Top 100 EDGE (Evolutionarily Distinct and Globally Endangered) mammals, where it was reported that "The species is widespread in remaining suitable habitat, although rare throughout its range, with a population of fewer than 2,500 mature individuals."

Major threats to the species were reported to be habitat loss, due to clearance of forest for cultivation, logging and charcoal production, selective hunting for its meat by local people and predation by feral cats and dogs (Schreiber *et al.*, 1989; Hawkins, 2008; Goodman, 2009). Hawkins (2008) identified the need for further studies to quantify the impact of hunting. Nilsson (2005) and Nowak (1991) listed competition with the introduced Small Indian Civet (*Viverricula indica*) as a possible threat, but Schreiber *et al.* (1989) considered this not to be important.

Jones *et al.* (2008; 2009) reported that local villagers in the eastern rainforests of Madagascar, Fianarantsoa Province, considered eating *E. goudotii* to be strictly taboo, which may offer the species some protection.

The species was reported to have been recorded in a number of protected areas, including Maningoza Special Reserve, Andohahela National Park, Ankarafansika National Park, Baie de Baly National Park, Montagne d'Ambre National Park and Ranomafana National Park (Hawkins, 2008).

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**MAMMALIA EUPLERIDAE**

| | |
|---|---|
| SPECIES: | *Fossa fossana* |
| SYNONYMS: | - |
| COMMON NAMES: | fanaloka (Danish), Fanaloka (Dutch), Fanaloka (English), Malagasy Civet (English), Striped Civet (English), Fanaloka (Finnish), Civette fossane (French), Civette malgache (French), Fanaloka (French), Fossana (French), Fanaloka (German), Civetta del Madagascar (Italian), Fanaloka (Italian), Cibeta de Madagascar (Spanish), Civeta (Spanish), falsk fossa (Swedish), fanaloka (Swedish), malgassisk sibetkatt (Swedish) |
| RANGE STATES: | Madagascar |
| RANGE STATE UNDER REVIEW: | Madagascar |
| IUCN RED LIST: | Near Threatened |
| PREVIOUS EC OPINIONS: | Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 22/12/1997 and last confirmed on 21/05/2009. |

## TRADE PATTERNS:

Apart from three live animals reported as an import by the United States from Madagascar in 2004, the only direct trade reported since 2002 was of scientific specimens going to United States between 2002 and 2003. Madagascar reported exporting a total of four live animals in 1997 and 1998 and a further 31 live animals in 2000 and 2001, but none since. There has never been any reported trade involving the EU.

## CONSERVATION STATUS in range states

**Madagascar:** *Fossa fossana* are small, primarily nocturnal, forest-dwelling carnivores endemic to Madagascar (Garbutt, 1999; Kerridge *et al.,* 2003; Hawkins, 2008).

Garbutt (1999) reported that *F. fossana* were "found throughout the moist rainforest areas of the east and north including those of the Sambirano region in the north-west. This species has also been seen in the isolated humid forests of Montagne d'Ambre and the less humid deciduous forests of the Ankarana Massid in the far north. Its likely strongholds are the largest remaining rainforest blocks on the Masoala Peninsula, the lowland and mid-altitude rainforests at Mananara, Ambatovaky and Zahamena, and in the Andohahela forest block in the extreme south-east." The species was reported

to have an altitudinal range from sea level to at least 1,600 m, but to be scarcer above 1,000 m (Hawkins, 2008).

*F. fossana* was classified as Near Threatened in the IUCN Red List (Hawkins, 2008) with the following justification:

> "This species has been found to be locally common in some areas, and is widely dispersed from north to south through eastern Madagascar forests. However, over the last 10 years, the population reduction of this species based on the combined impacts of habitat loss (especially given its habitat requirements), widespread hunting and the effects of feral carnivores, is estimated at 20-25%, and the species is therefore listed as Near Threatened. Almost qualifies as threatened under criterion A2cde."

The species was formerly classified as Vulnerable (Baillie and Groombridge, 1996; Hilton-Taylor, 2000). It was assigned a population trend of Decreasing (Hawkins, 2008).

Albignac (1972) reported that "The geographical distribution of the fossa genet is quite wide; the animal exists at least all over the east coast, in wooded areas, but apparently always in small numbers."

Nowak (1991) reported that "*F. fossa*, originally was found throughout the forested parts of Madagascar (IUCN, 1972)" but that "Loss of habitat and excessive hunting have restricted its range to the eastern and northwestern rainforests".

Schreiber (1989) reported that *F. fossa* was "still not uncommon in the remaining moist forest habitat," but that this habitat was rapidly shrinking and had been reduced to isolated patches.

In the Vevembe Forest near Vondrozo, *F. fossa* density was reported to be high, with 22 animals trapped in the last two weeks of July, 1999 (Kerridge *et al.,* 2003).

*F. fossana* was reported to be threatened by deforestation of its habitat through conversion to cultivated land, selective logging and charcoal production (Hawkins, 2008; Goodman, 2009), human persecution (as it is seen as a pest due to its tendency to prey on chickens) (Kerridge *et al.,* 2003; Goodman, 2009) and hunting by humans for food (Dollar, 2000; Hyatt, 2002; Kerridge *et al.,* 2003; Hawkins, 2008; Goodman, 2009). Introduced species including dogs, cats, and the small Indian civet *Viverricula indica* were reported to be competitors (Dollar, 2000; Hawkins, 2008), and dogs likely predators (Hawkins, 2008). Kerridge *et al.* (2003) also reported that the species was known to be preyed on by *Cryptoprocta ferox*.

Jones *et al.* (2008) reported that local villagers in the eastern rainforests of Madagascar, Fianarantsoa Province, considered eating *F. fossana* to be strictly taboo, which may offer the species some protection.

Nilsson (2005) reported that Madagascar's eastern rainforests (to which *F. fossana* is confined) have been reduced to less than 10 percent of their original size.

*F. fossana* was reported to occur in a number of protected areas, including Montagne d'Ambre, Masoala, Marojejy, Zahamena, Ranomafana and Andohahela National Parks, and Ankarana Special Reserve (Kerridge *et al.,* 2003; Hawkins, 2008).

Schreiber (1989) recommended that human persecution of *F. fossana* should be minimised, possibly by legal protection.

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AVES ANATIDAE**

SPECIES: *Anas bernieri*

SYNONYMS: *Querquedula bernieri*

COMMON NAMES: Madagascar krikand (Danish), Madagascar-eend (Dutch), Bernier's Teal (English), Madagascar Teal (English), Madagaskarintavi (Finnish), Canard de Bernier (French), Sarcelle de Bernier (French), Sarcelle de Madagascar (French), Sarcelle malgache de Bernier (French), Bernier-Ente (German), Anatre di Bernier del Madagascar (Italian), Cerceta de Madagascar (Spanish), Cerceta malgache (Spanish), Cerceta malgache de Bernier (Spanish), Pato de Bernier (Spanish), madagaskarand (Swedish), madagaskarkricka (Swedish)

RANGE STATES: Madagascar (br)

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Endangered

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 22/12/1997 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

Direct trade from Madagascar to the EU comprised: 50 feathers reported by Madagascar going to UK in 2001 for scientific purposes; four wild-sourced live birds reported by Madagascar in 1993, 1995 and 1997; and a further three wild-sourced live birds in 1998. These were reportedly going to UK but the true destination was apparently the Durrell Wildlife Conservation Trust on Jersey where they were used to establish a breeding programme[1] (Young, 1998). The only indirect trade appears to have been one live bird reported as an export by Jersey to Germany in 2001 and four bodies that the UK reported as an import from Jersey in 2005.

Globally, between 2000 and 2007, 115 captive-bred (sources C and F) live specimens and 104 source F bodies have been reported in trade, the majority exported from Jersey to the UK, Germany and Belgium.

[1] http://www.durrell.org/Animals/Birds/Madagascar-Teal/

## CONSERVATION STATUS in range states

**Madagascar:** *Anas bernieri* is a little-known duck endemic to Madagascar (BirdLife International, 2008b), found in low-lying freshwater and brackish lakes and mangrove stands (Sinclair and Langrand, 1998).

BirdLife International (2008b) reported that "Its range encompasses a narrow coastal strip along the whole of the west coast and the extreme north-east (Langrand, 1995; F. Razafindrajao per R. Safford *in litt*. 1999; ZICOMA, 1999; H.G. Young *in litt.* 2007). It is known to breed at many sites in Menabe and Melaky on the central west coast, and at Ankazomborona on the far north-west coast (Razafindrajao *et al.,* 2001): 100-500 were estimated to be present between Antsalova and Morondava in July-August 1993 (Morris and Hawkins, 1998) and a flock of 67 was seen near Tambohorano in 1998 (Anon, 1998); and a new breeding population of 200-300 individuals was recently discovered at Ankazomborona, north of Mahajanga and some 720 km north of the Masoarivo breeding site. The population in Baie de la Mahajamba was estimated to be 150-200 birds in November-December 2003 (Joiner *et al.,* 2006). The total population is estimated at 1,500-2,500 individuals (G. Young *in litt.* 2002 to Wetlands International, 2002)."

This species was listed as Endangered in the IUCN Red List (BirdLife International, 2008a) "because it has a very small population, in one subpopulation, that is undergoing a rapid and continuing decline owing to habitat loss and hunting." It was assigned the population trend Decreasing (BirdLife International, 2008a).

Jenkins (1987) reported that "Although not considered rare on the west coast in the last century (Milne Edwards and Grandidier, 1885) it was described as very rare and localised by around 1930 (Delacour, 1932a; 1932b); and although it has more recently been judged probably less rare than records suggest (Milon *et al.,* 1973), the only evidence of this is from the Lake Bemamba region, where 13 birds were shot in 1970 (Salvan, 1970; 1972) and, on Lake Bemamba itself, 81 birds were seen […] and no more than 120 estimated for the whole lake, August 1973 (Scott and Lubbock, 1974)."

Sinclair and Langrand (1998) described the species as rare.

*A. bernieri* was recorded in Baie de Baly National Park in 1999, but has not been seen during recent monitoring counts (Rabarisoa *et al.,* 2006).

BirdLife International (2008b) gave the following information on threats:

> "The species is now extremely threatened throughout its breeding range, by extensive habitat loss and disturbance. The distribution of known sites suggests that the single subpopulation is being fragmented as areas of habitat become unsuitable (Young, 2006; H.G. Young in litt. 2007). The species has limited dispersal capabilities and isolation may result in the loss of genetic diversity (Young, 2006). […] Subsistence hunting during the nesting season and the trapping of moulting birds are major threats (Young, 2006). In contrast, the newly discovered breeding site at Ankazomborona is not threatened by aquaculture and there is little pressure from subsistence hunters, though there is some pressure from sport hunters (Razafindrajao *et al.,* 2001). Breeding birds may suffer disturbance from human activity, such as the collection of crabs (Joiner *et al.,* 2006)."

Young (2006) also reported that *A. bernieri* was threatened by subsistence hunting, trapping, clearance of mangrove for shrimp farming and conversion of shallow coastal wetlands for rice cultivation.

Collar *et al.* (1994) reported that the species was "possibly (at least formerly) much persecuted".

*A. bernieri* was reported to have been recorded in Baly Bay National Park, Tsimanampetsotsa Strict Reserve, Analabe Private Reserve, Kirindy Mitea National Park and Lac Bedo Ramsar Site (BirdLife International, 2008b).

Young (2006) suggested that as the species' distribution indicated the emergence of three isolated sub-populations, future conservation strategies should include adequate protection of nesting, moulting and dry-season sites from each sub-population.

Young *et al*. (2003) reported that wetlands were generally neglected in Madagascar's reserve network, and that wildfowl were afforded little effective legal protection.

*A. bernieri* is a protected species in Madagascar, listed in Decree No. 2006 – 400 of 13 June 2006 (ONE, 2007).

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**REPTILIA PODOCNEMIDIDAE**

SPECIES: *Erymnochelys madagascariensis*

SYNONYMS: *Dumerilia madagascariensis, Podocnemis madagascariensis*

COMMON NAMES: Madagaskar scheenplaatschildpad (Dutch); Madagascar Big-headed Turtle (English); Madagascar Sideneck Turtle (English); Podocnémide de Madagascar (French); Madagaskar-Schienenschildkröte (German); madagaskisk halsvändarsköldpadda (Swedish); storhuvad madagaskisk hakvändare (Swedish)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Critically Endangered

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 22/12/1997 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

The only reported direct trade from Madagascar to the EU was of 12 live animals reported as an export by Madagascar to Italy in 1998, and scientific specimens to France, Germany and UK. The only indirect trade originating in Madagascar was of scientific specimens reported by Jersey to UK in 2000 and 2002. Table 1 shows direct trade in live animals from Madagascar to the rest of the world between 2002 and 2007.

**Table 1. Direct exports of live *Erymnochelys masagascariensis* from Madagascar to countries other than the EU 27.**

| Importer | Term | Purpose | Source | Reported by | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada | live | T | W | Importer | | | | | | | |
| | | | | Exporter | 4 | 4 | | | | | 8 |
| Costa Rica | live | S | W | Importer | | | | | | | |
| | | | | Exporter | | 3 | | | | | 3 |
| | | Z | C | Importer | | | | 3 | | | 3 |
| | | | | Exporter | | | | | | | |
| | | | W | Importer | | | | | | | |

| Importer | Term | Purpose | Source | Reported by | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Exporter | | | 3 | | | | 3 |
| Japan | live | T | W | Importer | 20 | | 4 | | | | 24 |
| | | | | Exporter | 4 | 4 | | | | | 8 |
| Serbia and Montenegro | live | T | W | Importer | | | | | | | |
| | | | | Exporter | | 6 | | | | | 6 |
| Switzerland | live | T | W | Importer | | | | | | | |
| | | | | Exporter | 7 | | | | | | 7 |
| United States | live | S | W | Importer | | 1 | | | | | 1 |
| | | | | Exporter | | | | | | | |
| | | T | I | Importer | | | | 8 | | | 8 |
| | | | | Exporter | | | | | | | |
| | | | W | Importer | | 7 | 3 | 22 | | 14 | 46 |
| | | | | Exporter | 10 | 19 | 22 | 8 | 12 | 4 | 75 |

**Table 2. CITES Export quotas for *Erymnochelys madagascariensis* from Madagascar and global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|
| Quota | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Reported by Importer | 41 | 42 | 20 | 8 | 7 | 22 | | 14 |
| Reported by Exporter | 59 | | 25 | 36 | 25 | 8 | 12 | 4 |

## CONSERVATION STATUS in range states

**Madagascar:** *Erymnochelys madagascariensis* is a freshwater turtle endemic to the western lowland river basins of Madagascar from the Sambirano region in the North to the Mangoky River in the south (Glaw and Vences, 1994; CBSG, 2001; Kuchling and Garcia, 2003). Bonin *et al.*(2006) reported its occurrence in "the Betsiboka, Mahalavy (including Lake Kinkony), Tsiribihina, Mangoky, and other rivers and farther south, in Lakes Bemamba, Masama, and Befotaka." It has an estimated extent of occurrence of >20,000 sq. km², area of occupancy of <500 km², and population size of at least 10,000 individuals (CBSG, 2001; in: Leuteritz *et al.,* 2008).

*E. madagascariensis* was classified as Critically Endangered in the IUCN Red List (Leuteritz *et al.,* 2008), with the justification that "Overall, the species is in widespread serious decline (affecting both genetic forms equally), which was estimated as 80% over the past 75 years (three generations) and projected to continue as a further 80% decline in the next 75 years (CBSG, 2001)." It was given a population trend of Decreasing (Leuteritz *et al.,* 2008).

Kuchling and Garcia (2003) stated that "*E. madagascariensis* is in serious, noncyclical decline over the whole area of its distribution […] Although the species is still widespread, the continuing downward trend in *Erymnochelys* populations is alarming."

The Tortoise and Freshwater Turtle Specialist Group ranked *E. madagascariensis* sixteenth in a list of 'The World's Top 25 Most Endangered Tortoises and Freshwater Turtles – 2007' (TFTSG, 2007).

Bonin *et al.*(2006) reported that *E. madagascariensis* was disappearing rapidly from most of the lakes in which it was common a century ago.

In a survey of *E. madagascariensis* populations based on interviews with local fishermen at 46 localities 1991-1992, Kuchling (1997) reported that "Eleven percent of the populations were considered to be

'exploited but relatively good,' 28% 'exploited and declining,' 28% 'heavily exploited and depleted,' 31% 'possibly extirpated' or 'extirpated,' and at one locality *Erymnochelys* may have 'never existed'."

Jenkins (1987) reported that the species was "widely considered rare, and may be declining", but also reported to be abundant in permanent lakes along the Tsiribihina and its affluents (Tronc and Vuillemin, 1974; in: Jenkins, 1987).

Leuteritz *et al.* (2008) provided the following information on threats:

> "*Erymnochelys* turtles are exploited for food at the local subsistence level and also taken as incidental catch in regular fishing (Kuchling, 1993; Kuchling and Mittermeier, 1993; Kuchling, 1997; CBSG, 2001; Garcia and Goodman, 2003).
>
> The habitat is fragmented by agricultural and deforestation practices. Siltation is a problem because of the conversion of lakes to rice fields (CBSG, 2001). No information is available on the predicted impacts of hydrological changes to Madagascar's rivers in the context of agricultural development, infrastructure development (dams/reservoirs) and climate change."

Glaw and Vences (1994) reported that *E. madagascariensis* could be threatened by overexploitation as they were consumed by local people.

Kuchling (1997) reported that "Exploitation for human consumption at a local subsistence level is the main reason for the decline of populations […] but trade in the turtles is limited and illegal."

Bonin *et al.*(2006) reported that *E. madagascariensis* was greatly favoured for food and fished intensively by the Malagasy people, but that it was not the object of organised commercial collection or trade.

Kuchling and Garcia (2003) gave the following information on the exploitation and subsequent collapse of populations:

> "The single most important predator of subadult and adult *Erymnochelys* is humans. Exploitation is mainly at the local subsistence level. The turtles are primarily captured during fishing, an activity that has expanded dramatically over the past 15 years. All turtles captured are killed and consumed […] Exploitation is mainly directed toward large turtles, but given that turtles are highly appreciated as food, some animals are harvested before reaching sexual maturity. At sites where there are many turtles, only animals larger that about 18 cm shell length are taken. In habitats where fishing pressure suddenly increases because of an influx of people with better fishing technology (seine nets), the extirpation pattern of *Erymnochelys* populations is characterised by their abrupt disappearance […] The reason for this phenomenon is that, once all reproducing females are extirpated and no further recruitment of hatchlings takes place, there are still, for several years, small size classes from previous reproductive seasons growing up to a size that makes them attractive for human consumption. Once all these size classes have also been eaten, extinction is so abrupt that local people are often mystified by the sudden disappearance of the species."

Most *E. madagascariensis* populations were reported to occur outside protected areas (Garcia and Goodman, 2003; Kuchling and Garcia, 2003), but small populations occur in the RNI d'Ankarafantsika, Forêt Classée d'Ampjoroa and perhaps the Bemaraha reserve complex (Kuchling and Garcia, 2003). However, even populations inside protected areas were reported to be under exploitation pressure (Garcia and Goodman, 2003; Kuchling and Garcia, 2003). For example, at Ankarafantsika, a particular problem was reported to be the increasing human population together with the loss of old traditions and taboos concerning wetland use (Kuchling and Garcia, 2003). Garcia and Goodman (2003) found bones of *E. madagascariensis* at a temporary raffia-gatherers' camp inside the Park, indicating that turtles had been consumed for food.

Kuchling (1997) recommended that "conservation action should include education campaigns for fishermen, a captive breeding or rearing program, and the establishment of a protected area."

Bonin *et al.* (2006) reported that a breeding and reintroduction project established in 1999 at the Ampijoroa centre was successful, but they suggested that local awareness programs and negotiations

to persuade villagers to switch to alternative protein sources, together with complete protection in some lakes and tight fishing quotas in others, were still needed to ensure the species' survival.

The Manambolomaty Lakes RAMSAR site, District of Antsalova, an important stronghold of *E. madagascariensis*, was reported to be managed successfully by two local associations (FIZAMI and FIFAMA), through effective collaboration and strong involvement of all stakeholders (Rabearivony *et al.,* 2008). One of their management indicators is that the *E. madagascariensis* population should represent all age classes (adult, juvenile and hatchling); this has yet to be achieved, and the species is still eaten locally, but it has been suggested that zoning of some parts of the lake as breeding sites, and prohibiting fishing activities in these areas, would help restore the population (R. Lewis pers. com. in: Rabearivony *et al.,* 2008).

The species was reported to be fully protected by Malagasy Law (Kuchling, 1993; Kuchling and Mittermeier, 1993; Kuchling, 1997; in: Leuteritz *et al.,* 2008). However, Kuchling and Garcia (2003) reported that "turtles are generally not marketed because they are considered to be protected by Malagasy law; however a recent review of the relevant Malagasy laws revealed that, technically, this is not the case (R. Lewis pers. comm.)." The species is listed as a protected species in Decree No. 2006-400 of 13 June 2006 (ONE, 2007).

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**EUPHORBIACEAE**

| | |
|---|---|
| SPECIES: | *Euphorbia millotii* |
| SYNONYMS: | - |
| COMMON NAMES: | - |
| RANGE STATES: | Madagascar |
| RANGE STATE UNDER REVIEW: | Madagascar |
| IUCN RED LIST: | Critically Endangered |
| PREVIOUS EC OPINIONS: | Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 29/10/2001 and last confirmed on 21/05/2009. Previous negative opinion formed on 22/07/1997. |

**TRADE PATTERNS:**

The only direct trade from Madagascar reported since 2002 was of 300 artificially propagated live specimens reported by France as an import in 2003. It appears that no wild plants of this species have been exported from Madagascar since 1996. During the same period, Switzerland reported the export of 90 artificially propagated live specimens and importers reported the import of 91 artificially propagated live specimens from the United States. Most of this trade had EU-27 Member States as the importers.

In an analysis of Significant Trade in Madagascan plants (Newman, 2003), *E. millotii* was listed in the top five highest-traded plants by volume (reported by Madagascar), for sources Artificially Propagated, Wild and unspecified, with a total of 39,645 specimens traded 1989-1999, including 11,290 wild-sourced specimens.

**CONSERVATION STATUS in range states**

**Madagascar:** *Euphorbia millotii* is a succulent plant endemic to coastal shrublands of Madagascar, known only from the area of coastal Lac Vert, south of Iharana (Haevermans, 2004).

*E. millotii* was classified as Critically Endangered in the IUCN Red List (Haevermans, 2004), with the following justification: "The species grows only in the vicinity of the coastal Lac Bleu, near Vohemar. Its habitat, coastal shrubland, is highly threatened by human activities. It is also a desirable species for cultivation, increasing the threat of extinction in the wild."

Major threats were reported to be habitat degradation, fire, habitat clearing for charcoal and collection for horticultural trade (Haevermans, 2004).

Newman (2003) reported that an expert panel considered international trade to affect the conservation status of *E. millotii.*

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# OVERVIEW OF MANTELLAS

Imports to the EU of 13 species of *Mantella* have been suspended since 2001 and the genus has been discussed by the SRG and in the CITES Animals Committee on several occasions. The species reviews below summarise the extensive information compiled to date in these fora in order to facilitate discussions at SRG 49 on whether the EU suspensions are still required.

## BACKGROUND

At its 21st meeting (AC21, Geneva, May 2005), the Animals Committee agreed that, under the terms of paragraph b) of Resolution Conf 12.8 (Rev. CoP13), a review should be undertaken of trade in *Mantella* spp.

IUCN was engaged to compile information about the biology and management of and trade in *Mantella* spp. and to provide a preliminary categorization of these species in compliance with paragraphs h) and i) of Resolution Conf. 12.8 (Rev. CoP13). All *Mantella* species were considered to be of Least Concern and a summary table was presented in Annex 1 of AC 23 Doc. 8.4. This information was presented at the 23rd meeting of the Animals Committee (AC23, Geneva, April 2008)

At its 23rd meeting (AC23, Geneva, April 2008), the Animals Committee considered document AC23 Doc. 8.4 and adopted recommendations.

At its 24th meeting (AC24, Geneva, April 2009), the Animals Committee considered documents AC24 Doc. 7.3 and AC24 WG1 Doc. 1 and adopted recommendations.

Document AC 23 Doc. 8.4 can be consulted for further information and for an overview of the control of wildlife trade and the role of CITES in Madagascar.

## TAXONOMIC NOTE

IUCN (2008) provided the following overview of *Mantella* taxonomic issues:

> "The taxonomy of the group has been and continues to be unstable. Forms may be considered different colour morphs of the same species by some authorities and as separate species by others. Hybridisation occurs relatively readily in captivity and there are also indications of hybrids in the wild. Current CITES taxonomy, which follows Frost (2004) recognizes 15 species [Table 3]. A further species, *M. ebenaui,* has recently been removed from synonymy with *M. betsileo* and is included in the current version of Frost (2007), and is therefore likely to be recognized under CITES at the next CoP. […] Vences and Glaw (2003) place the species into five groups based on likely affinities derived from molecular studies [Table 3]. They believe that some of these groups, such the *M. cowani* group, can be considered superspecies or species complexes."

**Table 3: Affinities of *Mantella* species. Source: IUCN, 2008.**

| Species group | *M. betsileo* | *M. bernhardi* | *M. cowani* | *M. laevigata* | *M. madagascariensis* |
|---|---|---|---|---|---|
| Species | *M. betsileo* | *M. bernhardi* | *M. baroni* | *M. laevigata* | *M. aurantiaca* |
| | *M. ebenaui*[1] | | *M. cowani* | | *M. crocea* |
| | *M. expectata* | | *M. haraldmeieri* | | *M. madagascariensis* |
| | *M. manery* | | *M. nigricans* | | *M. milotympanum* |
| | *M. viridis* | | | | *M. pulchra* |

[1] not currently recognised under CITES taxonomy.

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

| | |
|---|---|
| SPECIES: | *Mantella aurantiaca* |
| SYNONYMS: | - |
| COMMON NAMES: | gouden kikker (Dutch), Ginger Tree Frog (English), Golden Frog (English), Golden Mantella (English), Mantelle dorée (French), Rana dorada (Spanish), Ranita dorada de Madagascar (Spanish), guldmantella (Swedish) |
| RANGE STATES: | Madagascar |
| RANGE STATE UNDER REVIEW: | Madagascar |
| IUCN RED LIST: | Critically Endangered |
| PREVIOUS EC OPINIONS: | Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 18/02/2005 and last confirmed on 21/05/2009.<br>Previous negative opinion formed on 20/05/1999, Article 4.6 (d) suspension formed on 24/09/2000, Article 4.6 (b) suspension formed on 02/02/2001 and removed on 29/10/2001 and negative opinion formed on 19/04/2004. |

**TRADE PATTERNS:**

IUCN (2008) reported that "Until recently, *M. aurantiaca* was by far the most abundant mantella in international trade" and that "Commercial export of the species began in the late 1980s or early 1990s, with Malagasy export data indicating a few thousand a year exported at that time (Jenkins and Rakotomanampison, 1994). The species was included in Appendix II of CITES in 1995. Recorded trade originating in Madagascar increased considerably during the mid-1990s, peaking in 1998 at somewhere between 13,000 and 31,000. After this, trade decreased gradually and then markedly."

No export quotas were set for this species between 2002 and 2008, with very low-level exports recorded since 2003. Exports recorded in 2003 were most likely specimens for which export permits were issued in 2002.

In 2008, it was noted that "it appears that the setting of export quotas and the resumption of export is pending a fuller understanding of the status of the species in the wild" (IUCN, 2008).

In 2009, Madagascar issued an export quota for 2500 live specimens (Table 4).

It was considered that some reported exports of *M. aurantiaca* likely included other *Mantella* species, particularly *M. milotympanum,* which was not described until 1996 and which is sometimes considered a subspecies of the former (Rabemananjara *et al.,* 2007; IUCN, 2008; Rabemananjara *et al.,* 2008b).

*M. aurantiaca* was reported to be maintained in captivity in about 35 zoos and other institutions, and to be bred in captivity by public institutions and private individuals (Vences and Raxworthy, 2004).

**Table 4. Direct exports of *Mantella aurantiaca* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens.**

| Importer | Term | Purpose | Reported by | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | live | T | Importer | 400 | 1000 | 600 | | | | | | | | | 2000 |
| | | | Exporter | 600 | 1550 | 480 | 200 | | | | | | | | 2830 |
| Czech Republic | live | P | Importer | | | | | | | | | | | | |
| | | | Exporter | | 5 | | | | | | | | | | 5 |
| | | T | Importer | | 20 | 20 | | | | | | | | | 40 |
| | | | Exporter | | 30 | 20 | | 60 | | | | | | | 110 |
| Denmark | live | T | Importer | 140 | 330 | | | | | | | | | | 470 |
| | | | Exporter | 340 | | | | | | | | | | | 340 |
| France | live | P | Importer | | | | | | | | | | | | |
| | | | Exporter | | | | 30 | | | | | | | | 30 |
| | | T | Importer | 270 | 420 | 575 | | | | | | | | | 1265 |
| | | | Exporter | 1080 | 550 | 925 | | 30 | | | | | | | 2585 |
| | | - | Importer | 540 | | | | | | | | | | | 540 |
| | | | Exporter | | | | | | | | | | | | |
| Germany | bodies | S | Importer | | | | | | | | | 1 | 5 | | 6 |
| | | | Exporter | | | | | 5 | | | 100 | 1 | 5 | | 111 |
| | live | T | Importer | 930 | 1060 | 360 | | | | | | | | | 2350 |
| | | | Exporter | 1360 | 1670 | 280 | | 200 | 240 | | | | | | 3750 |
| | specimens | S | Importer | | | | | | | | 100 | 50 | 50 | | 200 |
| | | | Exporter | | | | | | | | | 20 | 50 | | 70 |
| Hungary | live | T | Importer | | | | | | | | | | | | |
| | | | Exporter | | 20 | 25 | | | | | | | | | 45 |
| Italy | live | S | Importer | | 12 | | | | | | | | | | 12 |
| | | | Exporter | | 12 | | | | | | | | | | 12 |
| | | T | Importer | | 20 | | | | | | | | | | 20 |

| Importer | Term | Purpose | Reported by | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Exporter | 230 | 120 | | | | | | | | | | 350 |
| Netherlands | live | T | Importer | 985 | 982 | 200 | | | | | | | | | 2167 |
| | | | Exporter | 1755 | 1325 | 440 | | | 260 | | | | | | 3780 |
| Spain | live | T | Importer | 150 | 245 | 145 | | | | | | | | | 540 |
| | | | Exporter | 175 | 265 | 175 | 12 | 50 | | | | | | | 677 |
| United Kingdom | live | T | Importer | 40 | 575 | 170 | | | | 299 | | | | | 1084 |
| | | | Exporter | 720 | 395 | 50 | 160 | | 300 | | | | | | 1625 |
| | bodies | | Importer | | | | | | | | | 1 | 5 | | 6 |
| | | | Exporter | | | | | 1 | | | 100 | 1 | 5 | | 111 |
| **Subtotals** | live | | Importer | 3455 | 4664 | 2070 | | | | 299 | | | | | 10488 |
| | | | Exporter | 6260 | 5942 | 2395 | 402 | 340 | 800 | | | | | | 16139 |
| | specimens | | Importer | | | | | | | | 100 | 50 | 50 | | 200 |
| | | | Exporter | | | | | | | | | 20 | 50 | | 70 |

**Table 5. Indirect exports of *Mantella aurantiaca* originating in Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens.**

| Exporter | Importer | Purpose | Reported by | 1997 | 1998 | 1999 | 2001 | 2002 | 2003 | 2005 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Switzerland | Germany | - | Importer | | | | | | | | |
| | | | Exporter | | | | | | | 6 | 6 |
| | Italy | - | Importer | | | | | | | | |
| | | | Exporter | | | | | | 20 | | 20 |
| United States | Denmark | T | Importer | 32 | 10 | | | | | | 42 |
| | | | Exporter | 12 | | | | | 10 | | 22 |
| | Italy | T | Importer | 38 | | | | | | | 38 |
| | | | Exporter | | | | | | | | |
| | Netherlands | T | Importer | | | | 12 | | | | 12 |
| | | | Exporter | | | | | | | | |
| | Spain | T | Importer | 25 | 100 | 25 | | | | | 150 |
| | | | Exporter | | 25 | | | | | | 25 |

**Table 6. Direct exports of *Mantella aurantiaca* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| bodies | W | P | Importer | | 5 | | | | | | | | | | 5 |
| | | | Exporter | | | | | | | | | | | | |
| | | S | Importer | | | | | | | | | | | | |
| | | | Exporter | | 3 | | 17 | | | | 5 | | | | 25 |
| | | T | Importer | | | | | | | | | | | | |
| | | | Exporter | | 5 | | | | | | | | | | 5 |
| live | C | T | Importer | | 12 | | | | | | | | | | 12 |
| | | | Exporter | | | | | | | | | | | | |
| | R | T | Importer | | | | | 300 | | | | | | | 300 |
| | | | Exporter | | | | | | | | | | | | |
| | U | T | Importer | 200 | 100 | | | | | | | | | | 300 |
| | | | Exporter | | | | | | | | | | | | |
| | W | P | Importer | | | | | | | | | | | | |
| | | | Exporter | 100 | | 4 | 30 | 20 | | | | | | | 154 |
| | | S | Importer | | | | | | | | | | | | |
| | | | Exporter | | 300 | | | | | | | | | | 300 |
| | | T | Importer | 7605 | 8646 | 5745 | 5676 | 7245 | 1450 | 2382 | | | | | 38749 |
| | | | Exporter | 11146 | 25221 | 5640 | 11073 | 9965 | 3980 | | | | | | 67025 |
| specimens | W | S | Importer | | | | | | | | 5 | | | | 5 |
| | | | Exporter | | | | | | | | | | | | |
| | | - | Importer | | 3 | | | | | | | | | | 3 |
| | | | Exporter | | | | | | | | | | | | |
| **Subtotals** | bodies | | Importer | | 5 | | | | | | | | | | 5 |
| | | | Exporter | | 8 | | 17 | | | | 5 | | | | 30 |
| | live | | Importer | 7805 | 8758 | 5745 | 5676 | 7545 | 1450 | 2382 | | | | | 39361 |
| | | | Exporter | 11246 | 25521 | 5644 | 11103 | 9985 | 3980 | | | | | | 67479 |

| Term | Source | Purpose | Reported by | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | specimens | | Importer | | 3 | | | | | | 5 | | | | 8 |
| | | | Exporter | | | | | | | | | | | | |

**Table 7. CITES Export quotas for *Mantella aurantiaca* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2001 | 2009 |
|---|---|---|
| Quota | 8000 | 2500 |
| Reported by importer | 7245 | |
| Reported by exporter | 10325 | |

## CONSERVATION STATUS in range states

**Taxonomic note:** Vences and Raxworthy (2004) reported that "There are populations of "golden" mantellas that might belong to other species. The taxonomy of this group is uncertain but the definition of *Mantella aurantiaca* is clear and there seems to be little genetic subdivision within the species (M. Vences pers. comm.)."

**Madagascar:** *Mantella aurantiaca* was classified as Critically Endangered in the IUCN Red List (Vences and Raxworthy, 2004) "because its Area of Occupancy is probably less than 10 km², its distribution is severely fragmented, and the extent of its forest habitat in east-central Madagascar is declining, and the number of mature individuals might also be declining through over-exploitation." Its remaining population was described as "extremely localized, being very abundant in tiny areas, often of just a few hectares", with a population trend of Decreasing (Vences and Raxworthy, 2004).

IUCN (2008) provided the following information on status:

> "*M. aurantiaca* has a very restricted distribution in east-central Madagascar, centred on the Torotorofotsy area (c. 7 km north-west of Andasibe) and the Andromena Forest at Samarirana River. Its recorded altitudinal range is 920 - 960m asl. […] Three separate rapid assessments of population densities, using mark-and-recapture methods, carried out in 2004 and 2007 indicated densities of between roughly 800 and 1300 animals per hectare although the surveyors stressed that these figures were based on sampling of very small areas and should not be used to extrapolate to larger areas (Rabemananjara *et al.,* 2008a). Vences *et al.* (2004) found high genetic (mitochondrial) diversity in samples of *M. aurantiaca* consistent with large population sizes despite a very small global range.
>
> The habitat of *M. aurantiaca* comprises a small area of forest surrounded by degraded land, and the remaining forest is under threat from subsistence agriculture, timber extraction, fires and expanding human settlements. In 2005 it was noted that recent surveys indicated that habitat was being degraded in all the areas where the species occurred. In 2001 a significant amount of the remaining suitable habitat at Torotorofotsy was affected by fire (although three years later the species was still common in the affected areas) (GAA, 2006)."

Bora *et al.* (2008) identified fourteen localities for *M. aurantiaca* in the following areas*:* Ambakoana, Ambatovy, Analabe, Analamay, Andranomandry, Andranomena, Andranonakoho, Besariaka forest, Sahasarotra and Torotorofotsy.

In a recent assessment of *M. aurantiaca* populations, the species was reported to occur at 25 sites, including new sites west of the main Mangoro River, a water body that was previously thought to be a barrier to dispersal (Randrianavelona, 2009). Due to its extended distributional range, it was suggested that a reassessment of its IUCN Red List Status may be necessary (Randrianavelona, 2009).

Whilst the main threat to *M. aurantiaca* was reported to be habitat loss/degradation, particularly due to subsistence agriculture (Vences and Raxworthy, 2004; Andreone *et al.,* 2005; Randrianavelona, 2009), overharvesting for trade was noted as a potential threat (Vences and Raxworthy, 2004; Andreone *et al.,* 2005). However, Vences and Raxworthy (2004) commented that "so far such harvesting has not had a visible effect on its populations."

Vences and Raxworthy (2004) suggested that "Plans to implement a controlled, sustainable trade through a trade quota should be encouraged, and would help ensure the survival of its habitat, as well as probably being more effective than complete trade bans."

Rabemananjara *et al.* (2008a) stated that "Our data provide important baseline data for conserving *Mantella* frogs and corroborate further indications (e.g. Vences *et al.,* 2004; Vieites *et al.,* 2005) that, for many species in this genus, population sizes in heavily exploited areas are not necessarily lower than in pristine areas without commercial collecting activity (e.g., *Mantella madagascariensis, M. milotympanum, M. aurantiaca*). However, without long-term and more detailed studies on population structure and dynamics of these frogs, our data are insufficient to quantitatively assess strategies for sustainable harvesting of these species."

IUCN (2008) reported that "A project that intends to survey in some detail all known sites where the species occurs and to formulate concrete conservation and management plans began in 2007 (Jenkins, 2007)." In a brief report, probably from this same project, Randrianavelona (2009) reported that "The results from this study were submitted to the Madagascar CITES Scientific Authority for Animals. The potential impact of trade still needs to be addressed."

IUCN (2008) reported that "A few populations of Golden Mantella are found in a Ramsar site ("Marais de Torotorofotsy avec leur bassins versants", covering 10,000 ha and declared in 2005 (RAMSAR, 2007)), which may eventually be included in a new protected area in the Zahamena-Ankeniheny corridor. All of the other known sites where the species occurs are unprotected (Jenkins, 2007)."

Randrianavelona (2009) reported that "Sixteen potential sites for *M. aurantiaca* in situ conservation […] are now included in a new protected area. This area, consisting of 25238 ha of humid forest, was awarded provisional status on the 17 October 2008."

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in this species is of least concern. Elimination from Review of Significant Trade. Madagascar is asked to inform the Secretariat of any quota that may be set and the Secretariat is to keep the Animals Committee informed."

At the 24th Meeting of the Animals Committee (CITES Secretariat, 2009), the following recommendation was adopted: "The WG noted with concern that a quota of 2,500 specimens had been established given the species has been listed as Critically Endangered (CR) by IUCN and recommended that these concerns be expressed in a letter from the Secretariat in which MG would be asked to explain in more detail the basis for and method of the calculation of this quota for *M. aurantiaca* (with a deadline of 3 months). This information should be submitted to the AC for review and possible recommendations including re-instatement into the process of significant trade review."

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella baroni*

SYNONYMS: *Phrynomantis maculatus*

COMMON NAMES: Baron's Mantella (English), Harlequin Mantella (English), Variegated Golden Frog (English), Variegated Mantella (English)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Least Concern

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

In IUCN (2008), it was reported that:

> "Reported trade in the species is at a relatively low level. However, Edwards (2007) notes that in the past the vast majority of specimens exported as *M. madagascariensis* have in fact been of this species. Trade reported as the latter has been at a considerably higher level than that reported as *M. baroni* (reported exports of some 27,500 and reported imports of ca 16,000 for the period 2000-2004). The species is bred in captivity in a number of countries (GAA, 2006) and is offered for sale as captive-bred specimens."

**Table 8. Direct exports of *Mantella baroni* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens.**

| Importer | Term | Purpose | Reported by | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Germany | bodies | S | Importer | | | 12 | | 2 | 6 | | 20 |
| | | | Exporter | 3 | | 7 | 101 | 2 | 6 | | 119 |
| | live | T | Importer | | | | | | | | |
| | | | Exporter | | | | | 90 | | | 90 |
| | specimens | S | Importer | | | | 100 | 50 | 50 | | 200 |
| | | | Exporter | | | | | 20 | 50 | | 70 |
| Italy | bodies | S | Importer | | | | | | | | |
| | | | Exporter | | | | 4 | | 2 | | 6 |
| | live | T | Importer | | | | | | | | |

| Importer | Term | Purpose | Reported by | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Exporter | | | | | | | 60 | 60 |
| | specimens | S | Importer | | | | | | | | |
| | | | Exporter | | | 30 | | | | | 30 |
| Subtotals | bodies | | Importer | | | 12 | | 2 | 6 | | 20 |
| | | | Exporter | 3 | | 7 | 105 | 2 | 8 | | 125 |
| | live | | Importer | | | | | | | | |
| | | | Exporter | | | | | 90 | | 60 | 150 |
| | specimens | | Importer | | | | 100 | 50 | 50 | | 200 |
| | | | Exporter | | | 30 | | 20 | 50 | | 100 |

Indirect trade originating in Madagascar to EU-27 consisted of 24 live specimens (Source W, Purpose T) reported by Poland as imports from Canada in 2003. Canada reported exporting 14 live specimens to Poland that year.

**Table 9. Direct exports of *Mantella baroni* from Madagascar to countries other than EU-27, 1997-2007. All trade was in wild-sourced specimens.**

| Term | Purpose | Reported by | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| bodies | S | Importer | | | 8 | | | | | 8 |
| | | Exporter | | | 8 | 32 | | | | 40 |
| live | S | Importer | 12 | | | | | | | 12 |
| | | Exporter | | | | | | | | |
| | T | Importer | | 10 | 650 | 313 | 2670 | 1359 | 1400 | 6402 |
| | | Exporter | | 10 | | 2769 | 881 | 3138 | 2752 | 9550 |
| specimens | S | Importer | | | 4 | 51 | | | | 55 |
| | | Exporter | | | 4 | 6 | | | | 10 |

**Table 10. CITES Export quotas for *Mantella baroni* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Quota | 5000 | 5000 | 5000 | 5000 | 5000 |
| Reported by importer | 2670 | 1359 | 1400 | | |
| Reported by exporter | 971 | 3138 | 2812 | | |

## CONSERVATION STATUS in range states

**Taxonomic note:** Nussbaum *et al.* (2004) reported that the southernmost populations were assigned to this species only tentatively. In a recent phylogenetic study, Rabemananjara *et al*. (2007) found evidence of a lack of genetic differentiation between *M. baroni/M.* aff. *baroni* and *M. nigricans*, and evidence of recent gene-flow between the northern (*M. nigricans*), eastern (*M. baroni*), and south-eastern (*M.* aff. *baroni*) forms of distinct coloration. However, they proposed not to formalise any taxonomic changes "before they are confirmed by analyses of nuclear markers, and before a more stable and complete framework of *Mantella* systematics can emerge from a comprehensive analyses" (Rabemananjara *et al*. 2007).

**Madagascar:** *Mantella baroni* was classified as Least Concern in the IUCN Red List (Nussbaum *et al*., 2004) "in view of its relatively wide distribution, tolerance of a degree of habitat modification, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category." It was reported to be locally abundant, with an unknown population trend (Nussbaum *et al*., 2004).

IUCN (2008) provided the following information on status:

> "*Mantella baroni* is widely distributed in east-central Madagascar from Fierenana south to Andringitra, at 600 - 1,200m altitude. The species occurs in modified habitats, although is believed

likely to be adversely affected by complete deforestation (GAA, 2006). Rapid population assessments using mark-and-recapture techniques carried out in three sites in 2003 and 2004 produced population density estimates of between 600 and 900 individuals per hectare (Rabemananjara *et al.,* 2008). Although the surveyors noted that these results should not be extrapolated to larger areas, it seems very likely that the overall population of the species is large or very large, given the extensive range over which the species occurs […] and its ability to survive in quite extensively modified habitat. Other researchers (e.g. Andreone *et al.,* 2000; Cadle, 2001) report the species to be at least locally very abundant."

Nussbaum *et al.* (2004) reported that "Although somewhat adaptable, deforestation does affect it adversely. It is in the international pet trade, but this is unlikely to be a serious threat." They also recommended that a carefully regulated trade was the best management option for this species (Nussbaum *et al.,* 2004).

The species is known to occur in the Ranomafana, Mantadia and Andringitra National Parks, and in the Pic Ivohibe Special Reserve (Nussbaum *et al.,* 2004).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade of this species is considered of least concern. Elimination from Review of Significant Trade. Madagascar is asked to review the quota of this species and agreed to do so."

At the 24th Meeting of the Animals Committee (CITES Secretariat, 2009), the following recommendation was adopted: "The WG recommends the AC to take note of the new quotas submitted."

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella bernhardi*

SYNONYMS: -

COMMON NAMES: Bernhard's Mantella (English), Black Mantella (English), Tolongoina Golden Frog (English)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Endangered

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

IUCN (2008) reported that "The species is known to be bred in captivity (e.g. Anon, 2006), although web-searches indicate that it is not widely kept, nor does it appear to be regularly offered for sale."

Data gathered during 2003 and 2004 by Rabemananjara *et al*. (2008 in: IUCN, 2008) indicated that the species was in high demand at that time.

The 2005 zero quota was apparently exceeded by 50 live specimens according to both exporter (Madagascar) and importer (USA) reported trade. The additional 10 live specimens reported by the importer that year were on a 2004 permit.

**Table 11. Direct exports of *Mantella bernhardi* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens. [No indirect trade reported]**

| Importer | Term | Purpose | Reported by | 1999 | 2002 | 2003 | 2004 | 2005 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Germany | bodies | S | Importer | | | 6 | | | 6 |
| | | | Exporter | | | 6 | 104 | | 110 |
| | live | T | Importer | | | | | | |
| | | | Exporter | | 20 | | | | 20 |
| | specimens | S | Importer | | | | 100 | 50 | 150 |
| | | | Exporter | | | | | 50 | 50 |
| Italy | bodies | S | Importer | | | | | | |
| | | | Exporter | | | | 9 | | 9 |
| Netherlands | live | T | Importer | 30 | | | | | 30 |
| | | | Exporter | | | | | | |

| Importer | Term | Purpose | Reported by | 1999 | 2002 | 2003 | 2004 | 2005 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Subtotals | bodies | | Importer | | | 6 | | | 6 |
| | | | Exporter | | | 6 | 113 | | 119 |
| | live | | Importer | 30 | | | | | 30 |
| | | | Exporter | | 20 | | | | 20 |
| | specimens | | Importer | | | | 100 | 50 | 150 |
| | | | Exporter | | | | | 50 | 50 |

**Table 12. Direct exports of *Mantella bernhardi* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | 4 | | | 4 |
| | | | Exporter | | | | 4 | 9 | | 13 |
| live | R | T | Importer | | | | | 80 | | 80 |
| | | | Exporter | | | | | 80 | | 80 |
| | W | T | Importer | 440 | 543 | 400 | 60 | 25 | 60 | 1528 |
| | | | Exporter | 390 | 1005 | 630 | | 10 | 50 | 2085 |
| specimens | W | S | Importer | | 8 | | 2 | 9 | | 19 |
| | | | Exporter | | | | 2 | 4 | | 6 |

**Table 13. CITES Export quotas for *Mantella bernhardi* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2005 | 2006 | 2009 |
|---|---|---|---|
| Quota | 0 | 0 | 650 |
| Reported by importer | 60 | | |
| Reported by exporter | 50 | | |

## CONSERVATION STATUS in range states

**Taxonomic note:** Molecular data indicated the existence of at least two different management units for conservation in this species, corresponding to the north and south of its distribution range (Vieites *et al.,* 2006; in: Cadle and Raxworthy, 2008).

**Madagascar:** *Mantella bernhardi* was classified as Endangered in the IUCN Red List (Cadle and Raxworthy, 2008), "because its Area of Occupancy is probably less than 500 km², its distribution is severely fragmented, and the extent of its forest habitat in east-central Madagascar is declining, and the number of mature individuals might also be declining through over-exploitation." It was described as locally abundant, but with limited suitable habitat within its range, with a population trend of Decreasing (Cadle and Raxworthy, 2008).

IUCN (2008) provided the following information on status:

> "This species occurs in southeastern Madagascar from Ranomafana south to near Manambondro, from c. 21.00° to 24.15°S and 47.00° to 48.00°E, and over 60–629 m altitude (Rabemananjara *et al.,* 2005). Its area of occupancy is probably less than 500 km² (GAA, 2006).
>
> Rapid population assessments using mark-and-recapture techniques carried out at four sites in 2003 and 2004 showed that the species could be locally abundant, with population density estimates of between 600 and 4500 individuals per hectare (Rabemananjara *et al.,* 2008). However, the surveyors noted that these were based on small or very small areas, and that they should not be extrapolated to larger areas.
>
> The area where the species occurs is being degraded rapidly due to subsistence agriculture, timber extraction, charcoal manufacture, livestock grazing, fires and expanding human settlements."

Vieites *et al.* (2006) reported that their unpublished data indicated local population densities of 170-820 individuals per hectare.

Several authors considered *M. bernhardi* to be threatened by collection for the pet trade (Vieites *et al.,* 2006; Cadle and Raxworthy, 2008). Cadle and Raxworthy (2008) recommended that there was a need for trade in this species to be carefully regulated.

Genetic studies conducted by Vieites *et al.* (2006) indicated the existence of at least two different management units for the conservation of *M. bernhardi*, corresponding to the North and South of its distribution range; given the genetic distinctiveness of *M. bernhardi* populations in Vevembé, they recommended the inclusion of this region in Madagascar's network of protected areas.

The species was reported to occur within two protected areas: Ranomafana National Park and Manombo Special Reserve (Cadle and Raxworthy, 2008).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in the species is considered to be of least concern. Elimination from Review of Significant Trade. Should a quota be re-established, then the AC may consider the species again."

At the 24th Meeting of the Animals Committee (CITES Secretariat, 2009), the following recommendation was adopted: "The WG recommends the AC take note of the quota. However, due to the localized distribution as well as the IUCN status being Endangered, the WG recommends that these concerns be expressed in a letter from the Secretariat in which MG would be asked to explain in more detail the basis for and method of calculation of this quota for *M. bernhardii* (with a deadline of 3 months). This information should be submitted to the AC for review and possible recommendation including re-instatement into the process of significant review. In addition the WG recommends to include this species in a long term standardized monitoring programme such as for *M. crocea*."

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella cowanii*

SYNONYMS: -

COMMON NAMES: Black Golden Frog (English), Cowan's Golden Frog (English), Cowan's Mantella (English), fläckig mantilla (Swedish)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Critically Endangered

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

In IUCN (2008) it was reported that "Because of concerns raised during 2003 over the rarity of the species and the apparent impact of collection, a zero export quota was imposed and the species was included as a fully protected species in revised legislation introduced in 2005 (Edwards, 2007)."

Zero export quotas for live specimens from Madagascar were established in 2005 and 2006. These quotas were not exceeded.

**Table 14. Direct exports of *Mantella cowanii* from Madagascar to EU 27, 1997-2007. All trade was in wild-sourced specimens.**

| Importer | Term | Purpose | Reported by | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2005 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| France | live | T | Importer | 50 | 50 | | | | | | 100 |
| | | | Exporter | | | | 15 | | | | 15 |
| Germany | live | T | Importer | 2 | | | | | | | 2 |
| | | | Exporter | | | | | 20 | | | 20 |
| | specimens | S | Importer | | | | | | | 50 | 50 |
| | | | Exporter | | | | | | | 50 | 50 |
| Hungary | live | T | Importer | | | | | | | | |
| | | | Exporter | | | 10 | | | | | 10 |
| Italy | specimens | S | Importer | | | | | | | | |
| | | | Exporter | | | | | | 50 | | 50 |
| Netherlands | live | T | Importer | | 100 | | | | | | 100 |
| | | | Exporter | | | | | | | | |

| Importer | Term | Purpose | Reported by | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2005 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subtotals | live | | Importer | 52 | 150 | | | | | | 202 |
| | | | Exporter | | | 10 | 15 | 20 | | | 45 |
| | specimens | | Importer | | | | | | | 50 | 50 |
| | | | Exporter | | | | | | 50 | 50 | 100 |

The only indirect trade originating in Madagascar to EU-27 involved 10 wild-sourced live specimens reported by Switzerland as exports to Italy in 2003. Italy did not report this transaction.

**Table 15. Direct exports of *Mantella cowanii* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2000 | 2001 | 2002 | 2003 | 2004 | Total |
|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | | | |
| | | | Exporter | | | | | 2 | 2 |
| live | R | T | Importer | | | | | 100 | 100 |
| | | | Exporter | | | | | 100 | 100 |
| | W | T | Importer | 170 | 434 | 241 | 500 | 20 | 1365 |
| | | | Exporter | 415 | 960 | 1500 | | | 2875 |
| specimens | W | S | Importer | | | | | 2 | 2 |
| | | | Exporter | | | | | 2 | 2 |

## CONSERVATION STATUS in range states

**Madagascar:** *Mantella cowanii* was classified as Critically Endangered in the IUCN Red List (Andreone and Vences, 2004), "because its Area of Occupancy is probably less than 10 km$^2$, its distribution is severely fragmented, and the extent of its habitat is probably declining; and also because of a drastic population decline, estimated to be more than 80% over the last three generations (estimated at 15 years), inferred from observed shrinkage in distribution and declines in the number of mature individuals, anecdotal information on habitat destruction and/or degradation, and from levels of exploitation inferred from the numbers of animals in international trade." Its population trend was reported to be Decreasing (Andreone and Vences, 2004).

IUCN (2008) provided the following information on status:

> "This species occurs on the high plateau of east-central Madagascar from Tsinjoarivo to Antoetra, with old records to the west that require further investigation. It occurs at 1,000 - 2,000m asl and has a tiny area of occupancy within its mapped range (GAA, 2006). Surveys in 2003 confirmed the presence of the species at Antoetra, with several isolated small populations scattered within this area and confirmed presence in the Ankaratra-Tsinjoarivo area (Andreone and Randrianirina, 2003; Andreone *et al.*, 2004).
>
> It was formerly reported as being common, but was reported in 2003 as having undergone a very marked recent decline in its distribution and in the number of mature adults (Andreone and Randrianirina, 2003). It was by then a rare species at all known sites (with each subpopulation estimated to number only about 50 mature individuals), with no reproduction recorded in recent years.
>
> Andreone and Randrianira (2003) reported that collection pressure on the species at that time was very high, with prices paid to collectors some ten times higher than those paid for *M. baroni*, which was also collected in the same region (4000-5000 FMG as opposed to 250-500 FMG)."

Andreone and Vences (2004) gave the following information on threats:

> "The fact that the observed decline in this species followed a period of increased exploitation for the international pet trade suggests that populations were over-collected, resulting in a population reduction. The species also occurs in a region that has largely been deforested, and the remaining forest fragments are being lost due to subsistence agriculture, timber extraction and charcoal production, fires, and expanding human settlements. However, the species appears able to adapt

to open areas, and usually does not penetrate within forests. The Farimazava population next to Antoetra has hybridized with *Mantella baroni* and might no longer be distinct."

The species is not known to occur in any protected area (IUCN, 2008).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in the species is considered of least concern. Elimination from Review of Significant Trade."

No further recommendations were made at the 24th Meeting of the Animals Committee (CITES Secretariat, 2009).

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella crocea*

SYNONYMS: -

COMMON NAMES: Eastern Golden Frog (English), Yellow Mantella (English), gul mantilla (Swedish)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Endangered

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

The 2005 quota was apparently exceeded. The quota excess, as reported by the importers, appears to have been caused by imports occurring on permits issued by Madagascar in the second half of the previous year and when these records are removed the imports are well below quota. The quota excess, as reported by Madagascar, may have been because Madagascar reports on the basis of permits issued rather than actual trade.

**Table 16. Direct exports of *Mantella crocea* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens. [No indirect trade reported]**

| Importer | Term | Purpose | Reported by | 1998 | 1999 | 2001 | 2002 | 2005 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Belgium | live | T | Importer | 200 | | | | | 200 |
| | | | Exporter | | | | | | |
| Germany | bodies | S | Importer | | | | | | |
| | | | Exporter | | | 5 | | | 5 |
| | live | T | Importer | 45 | 50 | | | | 95 |
| | | | Exporter | | | | | 60 | 60 |
| Netherlands | live | T | Importer | 125 | 175 | | | | 300 |
| | | | Exporter | | | | | | |
| Spain | live | T | Importer | 25 | 25 | | | | 50 |
| | | | Exporter | | | | | | |
| United Kingdom | live | T | Importer | | | | | | |
| | | | Exporter | | | | 100 | | 100 |
| **Subtotals** | bodies | | Importer | | | | | | |

| Importer | Term | Purpose | Reported by | 1998 | 1999 | 2001 | 2002 | 2005 | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | | Exporter | | | 5 | | | 5 |
| | live | | Importer | 395 | 250 | | | | 645 |
| | | | Exporter | | | | 100 | 60 | 160 |

**Table 17. Direct exports of *Mantella crocea* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | | | | | | |
| | | | Exporter | | | | | 4 | | | | 4 |
| live | U | T | Importer | 25 | | | | | | | | 25 |
| | | | Exporter | | | | | | | | | |
| | W | P | Importer | | | | | | | | | |
| | | | Exporter | | 20 | | | | | | | 20 |
| | | T | Importer | 738 | 1223 | 330 | 125 | 1020 | 2295 | 346 | 309 | 6386 |
| | | | Exporter | 1157 | 1750 | 530 | | 2229 | 1094 | 857 | 550 | 8167 |
| specimens | W | S | Importer | | | | | 4 | | | | 4 |
| | | | Exporter | | | | | | | | | |

**Table 18. CITES Export quotas for *Mantella crocea* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Quota | 1000 | 1000 | 1000 | 1000 | 500 |
| Reported by importer | 2295 | 346 | 309 | | |
| Reported by exporter | 1154 | 857 | 550 | | |

## CONSERVATION STATUS in range states

**Taxonomic note:** This species and *Mantella milotympanum* might be colour variants of the same species (M. Vences and F. Glaw pers. comm. in: Raxworthy and Vences, 2004). Glaw and Vences (2007) reported that "The colouration of typical *M. crocea* is unique, but other populations show all intermediates between *M. crocea* and *M. milotympanum*. A reliable distinction of these two forms is therefore not possible."

**Madagascar:** *Mantella crocea* was classified as Endangered in the IUCN Red List (Raxworthy and Vences, 2004), "because its Extent of Occurrence is less than 5,000 km$^2$ and its Area of Occupancy is probably less than 500 km$^2$, it is known from a single location, and the extent of its forest habitat in east-central Madagascar is declining, and the number of mature individuals might also be declining through over-exploitation." It was reported to be locally common, but with a patchy occurrence, with a population trend of Decreasing (Raxworthy and Vences, 2004).

IUCN (2008) provided the following information on status:

> "*Mantella crocea* is known from a few localities covering a very small area in east-central Madagascar: Ifoha west of Mantadia National Park; a forest area east of Ambohimanarivo; and outside Zahamena Strict Nature Reserve […] Its recorded altitudinal range is 800 -1,057m asl. It is locally common, but is very patchy in occurrence and its area of occupancy is believed to be probably less than 500 km$^2$ (Glaw and Vences, 2000; GAA, 2006).
>
> A rapid population assessment using mark and recapture, carried out in 2004, produced a population density estimate of some 2000 animals per hectare (Rabemananjara *et al.,* 2008). However, the survey was carried out over a very small area and the surveyors emphasised that the results should not be extrapolated to larger areas. Vences *et al.* (2004) found high genetic (mitochondrial) diversity in this species, which was consistent with a large population size.

> The forest habitat of the species is reported to be receding due to subsistence agriculture, timber extraction, charcoal manufacture, and invasive spread of eucalyptus, livestock grazing and expanding human settlements (GAA, 2006)."

Bora *et al.* (2008) identified nine localities for *M. crocea:* Ambodivoasary, Ambohimanarivo, Ambohitantely, Ampangadimbolana, Ankosy, Bakozetra, Ihofa, Marisiaka and Zahamena, eastern Madagascar. All sites but Bakozetra have been confirmed by recent observations (2000 onwards). Bora *et al.* (2008) also noted that more unrecorded localities were thought to exist, and that *M. crocea* "may occur in the large area between Andaingo and Zahamena, and possibly even north of Zahamena. However, considering the high rate of forest destruction along the borders of the main eastern rainforest blocks, many of these populations are to be expected in small fragments threatened by logging and slash-and-burn agriculture."

Edmonds (2009) recorded that species' occurrence in the north-west corner of Zahamena National Park and confirmed its occurrence in the forest bordering the north of Torotorofotsy marsh (the site named Bakozetra in Bora *et al*., 2008), from field studies conducted in January and February 2009. He recommended that "Future surveys should be conducted in the unprotected forests between these two newly confirmed *M. crocea* localities [Zahamena and Torotorofotsy] because there are undoubtedly other sites in the eastern rainforest belt where this species occurs that have yet to be documented" (Edmonds, 2009).

IUCN (2008) reported that *M. crocea* was **"**believed likely to occur in Mantadia National Park and Zahamena Strict Nature Reserve (GAA, 2006). It is known to occur in a Ramsar site ("Marais de Torotorofotsy avec leur bassins versants", covering 10,000 ha and declared in 2005 [RAMSAR, 2007]), which may eventually be included in a new protected area in the Zahamena-Ankeniheny corridor." Recent observations confirm the species' occurrence within the Special Reserve of Ambohitantely (Bora *et al.,* 2008) and Zahamena National Park (Edmonds, 2009).

Raxworthy and Vences (2004) stated that a carefully regulated trade was the best management option for this species.

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in this species is considered of possible concern. Retain in Review of Significant Trade. Madagascar is asked to provide additional data on the population estimates and on the non-detriment finding in order for the AC to reconsider its status at AC24."

At the 24th Meeting of the Animals Committee (CITES Secretariat, 2009), the working group recommended this species to be retained in the process and proposed the following additional recommendations:

> "a) a zero quota be established.
>
> b) Madagascar should find the resources for a long term standardized monitoring programme for the three species to be able to monitor the population trends in protected and unprotected areas and the effect of trade, should it be resumed. For reference to such standardized monitoring programme, refer for example to AC24 Doc. 9.1 – p.25, Measuring and Monitoring Biological Diversity – Standard methods for Amphibians.
>
> c) on the basis of the information received and the results stemming from these programmes, such as population estimates and NDFs, precautionary quotas may be set in the future.
>
> d) adaptive management strategies should be implemented."

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella expectata*

SYNONYMS: -

COMMON NAMES: Blue-legged Mantella (English), Tulear Golden Frog (English), blåbenad mantella (Swedish)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Endangered

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

IUCN (2008) reported that *Mantella expectata* was "bred in captivity, and is currently offered for sale on the internet at average or slightly higher than average prices for mantellas in general (ca USD 25-35 in Canada and the USA)" and that "Data gathered during 2003-2004 by Rabemananjara *et al*. (2007) corroborate the relatively high demand for the species."

IUCN (2008) reported that "Andreone (2007) and Vences (2007) both believe the current quota [1000 specimens] to be sustainable; the former considers that it could be increased somewhat without undue concern, in view of the great abundance of the species at some sites, and the fact that it is now known to be more widespread than had hitherto been thought."

The 2005 export quota was apparently exceeded. The quota excess, however, was caused by imports occurring on permits issued in the second half of the previous year and when these records are removed the imports are well below quota.

**Table 19. Direct exports of *Mantella expectata* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens. [No indirect trade reported]**

| Importer | Term | Purpose | Reported by | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2004 | 2005 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | live | T | Importer | 100 | 300 | | | | | | | | 400 |
| | | | Exporter | | | | | | | | | | |
| France | live | T | Importer | | | | | | | | | | |
| | | | Exporter | | | | 50 | 15 | | | | | 65 |
| Germany | bodies | S | Importer | | | | | | | | 2 | | 2 |
| | | | Exporter | | | | | | | | 2 | | 2 |

| Importer | Term | Purpose | Reported by | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2004 | 2005 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | live | T | Importer | | 124 | 30 | | | | | | | 154 |
| | | | Exporter | | | | | | 20 | | 60 | 10 | 90 |
| Hungary | live | T | Importer | | | | | | | | | | |
| | | | Exporter | | | | 20 | | | | | | 20 |
| Italy | bodies | S | Importer | | | | | | | | | | |
| | | | Exporter | | | | | | | 19 | 90 | | 109 |
| | live | T | Importer | | | | | | | | | | |
| | | | Exporter | | | | | | | | | 10 | 10 |
| Netherlands | live | T | Importer | | 175 | 75 | | | | | | | 250 |
| | | | Exporter | | | | | | | | | | |
| Spain | live | T | Importer | | 25 | | | | | | | | 25 |
| | | | Exporter | | | | | | | | | | |
| **Subtotals** | bodies | | Importer | | | | | | | | 2 | | 2 |
| | | | Exporter | | | | | | | 19 | 192 | | 111 |
| | live | | Importer | 100 | 624 | 105 | | | | | | | 829 |
| | | | Exporter | | | | 70 | 15 | 20 | | 60 | 20 | 185 |

**Table 20. Direct exports of *Mantella expectata* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | | | | | | |
| | | | Exporter | | | | | 3 | | | | 3 |
| live | R | T | Importer | | 30 | | | 80 | | | | 110 |
| | | | Exporter | | | | | 80 | | | | 80 |
| | W | P | Importer | | | | | | | | | |
| | | | Exporter | 20 | 20 | | | | | | | 40 |
| | | T | Importer | 220 | 630 | 1390 | 1125 | 1200 | 2675 | 272 | 248 | 7760 |
| | | | Exporter | 1190 | 1685 | 2365 | | 4191 | 931 | 971 | 609 | 11942 |
| specimens | W | S | Importer | | | | | 3 | | | | 3 |
| | | | Exporter | | | | | 2 | | | | 2 |

**Table 21. CITES Export quotas for *Mantella expectata* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Quota | 1000 | 1000 | 1000 | 1000 | 250 |
| Reported by importer | 2675 | 272 | 248 | | |
| Reported by exporter | 991 | 971 | 629 | | |

## CONSERVATION STATUS in range states

**Taxonomic note:** Records of *Mantella expectata* or *M. betsileo* from the arid west and southwest Madagascar (including from from Tsingy de Bemaraha) probably refer to a separate, undescribed, species that is not characterized by blue legs (F. Andreone pers. comm. in: Andreone *et al.,* 2004).

**Madagascar:** *M. expectata* was classified as Endangered in the IUCN Red List (Andreone *et al.,* 2004), "because its Extent of Occurrence is less than 5,000 km², all individuals are in fewer than five locations, and there is continuing decline in the extent and quality of its habitat around Isalo, and it is possibly subject to over-collecting for the pet trade leading to a decline in the number of mature individuals." It was described as "sometimes locally abundant in suitable habitat; where present it may occur with high densities", with a population trend of Decreasing (Andreone *et al.,* 2004).

IUCN (2008) provided the following information on status:

> "*Mantella expectata* is endemic to a small region in south-western Madagascar centred on the Islao Massif (at 700-1,000m) […] Previously known from only one or two sites, recent records have

extended the range of the species which is now known to be quite widespread in the Isalo Massif both within and outside Isalo National Park (Andreone, 2007). Records from near Toliara (Busse and Böhme, 1992) are probably erroneous (Vences *et al.,* 1999), while records from the Morondava region and Mandena (Glaw and Vences, 1994) are unreliable because no voucher specimens or recent field surveys document the species' presence in these areas. However, there are reports of large, *expectata*-like mantellas from south-west Madagascar outside the Isalo Massif area which may be of this species, or a closely related one.

Andreone (2007) noted that the species can be very abundant in the areas where it occurs.

The species may be suffering the effects of habitat loss due to grazing and fire, and also locally due to mining for sapphires (GAA, 2006)."

Andreone *et al.* (2004) gave the following information on threats:

"The main threat to this species is habitat loss due to grazing and fire, and in some localized regions due to mining for sapphires. It is actively sought after for the pet trade, and during the rainy season up to several thousand specimens can be collected. Such collecting might pose a major threat to the species, but this has not, as yet, been demonstrated."

*M. expectata* occurs within one protected area: Parc National de l'Isalo (Andreone *et al.,* 2004). However, a recent phylogenetic study found that much of the genetic diversity of *M. expectata* populations occurred outside the Parc National de l'Isalo, emphasizing the importance of currently unprotected habitats in conserving the genetic diversity of this species (Crottini *et al.,* 2008).

Andreone *et al.* (2004) recommended that trade in this species should be carefully regulated, with populations requiring close monitoring.

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in this species is considered of possible concern. Retain in Review of Significant Trade. Madagascar is asked to provide additional data on the population estimates and on the non-detriment finding in order for the AC to reconsider its status at AC24."

At the 24th Meeting of the Animals Committee (CITES Secretariat, 2009), the working group recommended this species to be retained in the process and proposed the following additional recommendations:

"a) a zero quota be established.

b) Madagascar should find the resources for a long term standardized monitoring programme for the three species to be able to monitor the population trends in protected and unprotected areas and the effect of trade, should it be resumed. For reference to such standardized monitoring programme, refer for example to AC24 Doc. 9.1 – p.25, Measuring and Monitoring Biological Diversity – Standard methods for Amphibians.

c) on the basis of the information received and the results stemming from these programmes, such as population estimates and NDFs, precautionary quotas may be set in the future.

d) adaptive management strategies should be implemented."

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella haraldmeieri*

SYNONYMS: *Mantella madagascariensis haraldmeieri*

COMMON NAMES: Haraldmeier's Mantella (English), Tolagnaro Golden Frog (English)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Vulnerable

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

## TRADE PATTERNS:

Zero export quotas for live specimens from Madagascar were established in 2005 and 2006 and no trade was reported in these years.

**Table 22. Direct exports of *Mantella haraldmeirei* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens imported by Germany for scientific purposes. [No indirect trade reported]**

| Term | Reported by | 2004 | 2005 |
|---|---|---|---|
| bodies | Importer | 1 | |
| | Exporter | 1 | |
| specimens | Importer | | 50 |
| | Exporter | | 50 |

**Table 23. Direct exports of *Mantella haraldmeirei* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2000 | 2001 | 2002 | 2003 | 2004 | Total |
|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | | | |
| | | | Exporter | | | | | 8 | 8 |
| live | W | T | Importer | | 180 | | 350 | 410 | 940 |
| | | | Exporter | 240 | 310 | 380 | | 650 | 1580 |
| specimens | W | S | Importer | | | | | 8 | 8 |
| | | | Exporter | | | | | 2 | 2 |

## CONSERVATION STATUS in range states

**Taxonomic note:** It was reported that *Mantella haraldmeieri* might be a colour morph of *Mantella baroni* (F. Glaw pers. comm. in: Nussbaum and Raxworthy, 2004). However, in a recent phylogenetic study, results supported the status of *Mantella haraldmeieri* as a distinct evolutionary lineage (Rabemananjara *et al*., 2007).

**Madagascar:** *Mantella haraldmeieri* was classified as Vulnerable in the IUCN Red List (Nussbaum and Raxworthy, 2004), "because its Extent of Occurrence is less than 20,000 km², all individuals are in fewer than ten locations, and there is likely to be continuing decline in the extent and quality of its forest habitat in southeastern Madagascar." It was described as locally common, with a population trend of Decreasing (Nussbaum and Raxworthy, 2004).

IUCN (2008) provided the following information on status:

> "*Mantella haraldmeieri* is known from at least ten localities in extreme southeastern Madagascar, at 300– 950 m altitude (Glaw and Vences, 2000; GAA, 2006). No information on levels of abundance has been located. Its forest habitat is receding due to subsistence agriculture, timber extraction, charcoal manufacture, and invasive spread of eucalyptus, livestock grazing and expanding human settlements. Collection for the pet trade is not regarded as a significant pressure (Glaw and Vences, 2000; GAA, 2006)."

During surveys conducted 2003-2004, Rabemananajara *et al*. (2007; in: IUCN, 2008) noted that collection of this species was only carried out on an occasional basis.

*M. haraldmeieri* is known to occur in the Andohahela National Park (Nussbaum and Raxworthy, 2004).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in the species is considered of least concern. Elimination from Review of Significant Trade."

No further recommendations were made at the 24th Meeting of the Animals Committee (CITES Secretariat, 2009).

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella laevigata*

SYNONYMS: -

COMMON NAMES: Arboreal Mantella (English), Climbing Mantella (English), Folohy Golden Frog (English), Green-backed Mantella (English), trädlevande mantella (Swedish)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Near Threatened

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

Edwards (2007; in: IUCN, 2008) reported that this species, along with *M. betsileo*, was regarded as the least desirable *Mantella* species in international trade.

IUCN (2008) reported that "Andreone (2007) expressed some concern over the level of the quota, on the basis that the species was a rainforest dweller, which he believed made it more vulnerable to overexploitation than some more open-habitat species. However […] indications from Rabemananjara *et al.* (2008) and Heying (2001) are that the species can be at least locally abundant. Edwards (2007) also notes that a significant proportion of the range of the species is along an inaccessible coastline where no commercial collection occurs. He reports that they are mostly collected around Fenerive, north of Toamasina (Tamatave) and observes that in general local people are reluctant to collect the species because they are not paid enough to make it worth their while."

The 2005 export quota was apparently exceeded. The quota excess, however, was caused by imports occurring on permits issued in the second half of the previous year and when these records are removed the imports are well below quota.

**Table 24. Direct exports of *Mantella laevigata* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens.**

| Importer | Term | Purpose | Reported by | 1997 | 1998 | 1999 | 2001 | 2002 | 2005 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | live | T | Importer | 100 | 200 | | | | | | 300 |
| | | | Exporter | | | | | | | | |
| Czech Republic | live | T | Importer | | | | | | | | |

| Importer | Term | Purpose | Reported by | 1997 | 1998 | 1999 | 2001 | 2002 | 2005 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Exporter | | | | 20 | | | | 20 |
| Germany | bodies | S | Importer | | | | | | 4 | | 4 |
| | | | Exporter | | | | | | 4 | | 4 |
| | live | T | Importer | | 85 | 170 | | | | | 255 |
| | | | Exporter | | | | | 20 | 50 | | 70 |
| | specimens | S | Importer | | | | | | 50 | | 50 |
| | | | Exporter | | | | | | 50 | | 50 |
| Italy | live | T | Importer | | | | | | | | |
| | | | Exporter | | | | | | | 25 | 25 |
| Netherlands | live | T | Importer | | 125 | 245 | | | | | 370 |
| | | | Exporter | | | | | | | | |
| Spain | live | T | Importer | | 25 | | | | | | 25 |
| | | | Exporter | | | | 20 | | | | 20 |
| United Kingdom | live | T | Importer | | | | | | | | |
| | | | Exporter | | | | | 150 | | | 150 |
| **Subtotals** | bodies | | Importer | | | | | | 4 | | 4 |
| | | | Exporter | | | | | | 4 | | 4 |
| | live | | Importer | 100 | 435 | 415 | | | | | 950 |
| | | | Exporter | | | | 40 | 170 | 50 | 25 | 285 |
| | specimens | | Importer | | | | | | 50 | | 50 |
| | | | Exporter | | | | | | 50 | | 50 |

The only indirect trade reported were 10 live specimens (source W, purpose T) reported as exports from Denmark to the US in 2003. Denmark did not report this transaction.

**Table 25. Direct exports of *Mantella laevigata* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | | | | | | |
| | | | Exporter | | 5 | | | 7 | | | | 12 |
| live | R | T | Importer | | 225 | | | | | | | 225 |
| | | | Exporter | | | | | | | | | |
| | U | T | Importer | 442 | | | | | | | | 442 |
| | | | Exporter | | | | | | | | | |
| | W | T | Importer | 427 | 1930 | 533 | 1606 | 1795 | 2910 | 991 | 545 | 10737 |
| | | | Exporter | 2537 | 2755 | 1000 | | 4333 | 1519 | 1148 | 1018 | 14310 |
| specimens | W | S | Importer | | | | | 9 | | | | 9 |
| | | | Exporter | | | | | 7 | | | | 7 |

**Table 26. CITES Export quotas for *Mantella laevigata* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Quota | 2000 | 2000 | 2000 | 2000 | 2000 |
| Reported by importer | 2910 | 991 | 545 | | |
| Reported by exporter | 1569 | 1148 | 1043 | | |

## CONSERVATION STATUS in range states

**Madagascar:** *Mantella laevigata* was classified as Near Threatened in the IUCN Red List (Andreone and Glaw, 2004), "because its Extent of Occurrence is probably not much greater than 20,000 km², and the extent and quality of its habitat are probably declining, thus making the species close to qualifying for Vulnerable." It was reported to be locally abundant with a population trend of Decreasing (Andreone and Glaw, 2004).

IUCN (2008) provided the following information on status:

> "*Mantella laevigata* is relatively widely distributed in north-eastern Madagascar, from Marojejy south to Folohy (where its habitat has been degraded), and has been recorded at altitudes from 0-600m asl. Rapid population assessments, using mark and recapture methods, carried out in late 2003 and early 2004 at Marojejy provided high population density estimates of 9000-9500 individuals per hectare (Rabemananjara *et al.*, 2008). The surveys were carried out over a very small area and the surveyors counselled that these should not be extrapolated to larger areas. Heying (2001) in a behavioural study on Nosy Mangabe in the late 1990s marked 218 individuals in one season and a further 83 in a second season in an area of just over 1500 $m^2$ of which only around 150 $m^2$ was made up of optimum bamboo habitat, where the great majority of the frogs were found. Extrapolation from these indicates a very rough population density of perhaps 2000 individuals per hectare for mixed habitat and a much higher local density for optimum habitat. The species occurs over an area of many thousands of square kilometres, although it is not known how much of this comprises suitable habitat.
>
> The forest habitat of *M. laevigata* is receding due to subsistence agriculture, timber extraction, charcoal manufacture, invasive spread of eucalyptus, livestock grazing and expanding human settlements. However, the species can make use of non-native as well as native bamboo species (Heying, 2001) and can therefore evidently survive in at least partially modified habitats."

Rabemananjara *et al.* (2007; in: IUCN, 2008) noted that collection of this species was carried out on an occasional basis and in relatively low numbers.

Andreone and Glaw (2004) reported that *M. laevigata* was traded in low numbers for the international pet trade, but not at a level that was likely to constitute a threat.

This species was reported to occur in several protected areas including Masoala and Marojejy National Parks and Nosy Mangabe Special Reserve (IUCN, 2008).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in the species is considered of least concern. Elimination from Review of Significant Trade."

No further recommendations were made at the 24th Meeting of the Animals Committee (CITES Secretariat, 2009).

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella madagascariensis*

SYNONYMS: *Dendrobates madagascariensis, Mantella loppei*

COMMON NAMES: Madagascan Mantella (English), Madagascar Golden Frog (English), Malagasy Mantella (English), Painted Mantella (English), madagaskarmantella (Swedish), målad mantella (Swedish)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Vulnerable

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

The 2005 and 2006 quotas were apparently exceeded. When imports occurring on permits issued in the second half of the previous year are taken into account, trade reported by the importing countries on export permits issued in 2005 still appears to have exceeded the quota of 500 by 94 individuals. In 2006, importers' data suggest the quota was not exceeded. The 2006 apparent quota excess as reported by the exporter is probably based on permits issued rather than actual trade.

Edwards (2007; in: IUCN, 2008) noted that "the vast majority of specimens exported as *M. madagascariensis* were in fact *M. baroni*, a more widespread species until recently often considered synonymous with *M. madagascariensis*."

**Table 27. Direct exports of *Mantella madagascariensis* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens.**

| Importer | Term | Purpos | Reported | 199 | 199 | 199 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | live | T | Importer | 125 | 400 | | | | | | | | | | 525 |
| | | | Exporter | | | | | | | | | | | | |
| Czech | live | T | Importer | | | | | | | | | | | | |
| | | | Exporter | | | | | 20 | | | | | | | 20 |
| France | live | P | Importer | | | | | | | | | | | | |
| | | | Exporter | | | | 30 | | | | | | | | 30 |
| | | T | Importer | | 230 | 635 | | | | | | | | | 865 |
| | | | Exporter | | | | 100 | 20 | | | | | | | 120 |
| Germany | bodies | S | Importer | | | | | | | 1 | | | | | 1 |
| | | | Exporter | | | | | 4 | | 3 | 1 | | | | 8 |
| | live | B | Importer | | 10 | | | | | | | | | | 10 |
| | | | Exporter | | | | | | | | | | | | |
| | | T | Importer | | 732 | 330 | | | | | | | | | 1062 |
| | | | Exporter | | | | | 100 | 20 | | | 88 | 25 | 17 | 250 |
| | specimen | S | Importer | | | | | | | | | | | | |
| | | | Exporter | | | | | | | | | 20 | | | 20 |
| Hungary | live | T | Importer | | | | | | | | | | | | |
| | | | Exporter | | | | 25 | | | | | | | | 25 |
| Netherlands | live | T | Importer | | 715 | 520 | | | | | | | | | 1235 |
| | | | Exporter | | | | | | | | | | | | |
| Spain | live | T | Importer | | 105 | 50 | | | | | | | | | 155 |
| | | | Exporter | | | | | 50 | | | | | | | 50 |
| United | live | T | Importer | | | | | | | | | | | | |
| | | | Exporter | | | | | | 100 | | | | | | 100 |
| **Subtotals** | bodies | | Importer | | | | | | | 1 | | | | | 1 |
| | | | Exporter | | | | | 4 | | 3 | 1 | | | | 8 |
| | live | | Importer | 125 | 219 | 153 | | | | | | | | | 3852 |
| | | | Exporter | | | | 155 | 190 | 120 | | | 88 | 25 | 17 | 595 |
| | specimen | | Importer | | | | | | | | | | | | |
| | | | Exporter | | | | | | | | | | | | |

**Table 28. Indirect exports of *Mantella madagascariensis* originating in Madagascar to EU-27, 1997-2007. All trade was in live specimens.**

| Exporter | Importer | Purpose | Source | Reported by | 1999 | 2002 | 2003 | 2005 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Canada | Denmark | T | W | Importer | | | | | |
| | | | | Exporter | | | | 18 | 18 |
| Switzerland | Germany | - | R | Importer | | | | | |
| | | | | Exporter | | | | 12 | 12 |
| | Italy | - | W | Importer | | | | | |
| | | | | Exporter | | | 20 | | 20 |
| United States | Denmark | T | W | Importer | | | | | |
| | | | | Exporter | 6 | | 10 | | 16 |
| | France | T | W | Importer | 12 | | | | 12 |
| | | | | Exporter | | | | | |
| | Germany | T | W | Importer | | | | | |
| | | | | Exporter | | 2 | | | 2 |

**Table 29. Direct exports of *Mantella madagascariensis* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | 2 | | | | | 2 |
| | | | Exporter | | | | 2 | 8 | | | | 10 |
| live | R | T | Importer | | 300 | | | 150 | | | | 450 |
| | | | Exporter | | | | | 150 | | | | 150 |
| | W | P | Importer | | | | | | | | | |
| | | | Exporter | 20 | 20 | | | | | 4 | | 44 |
| | | S | Importer | | 12 | | | | | | | 12 |
| | | | Exporter | 20 | | | | | | | | 20 |
| | | T | Importer | 450 | 2931 | 3325 | 4873 | 4095 | 3385 | 329 | 133 | 19521 |
| | | | Exporter | 6070 | 8615 | 5450 | | 6531 | 1124 | 563 | 247 | 28600 |
| specimens | W | S | Importer | | 1 | | 2 | 11 | | | | 14 |
| | | | Exporter | | 4 | | 2 | 3 | | | | 9 |

**Table 31. CITES Export quotas for *Mantella madagascariensis* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Quota | 500 | 500 | 500 | 500 | 500 |
| Reported by importer | 3385 | 329 | 133 | | |
| Reported by exporter | 1212 | 580 | 264 | | |

## CONSERVATION STATUS in range states

**Taxonomic note:** This species is closely related to *Mantella pulchra* (F. Glaw pers. comm. in: Andreone and Glaw, 2004).

**Madagascar:** *Mantella madagascariensis* was classified as Vulnerable in the IUCN Red List (Andreone and Glaw, 2004), "because its Extent of Occurrence is less than 20,000 km², its distribution is severely fragmented, and there is continuing decline in the extent and quality of its forest habitat in eastern Madagascar." It was described as uncommonly encountered, but with large numbers recorded in trade, with a population trend of Decreasing (Andreone and Glaw, 2004).

IUCN (2008) provided the following information on status:

> "This species occurs in east-central Madagascar from near Niagarakely south to Ranomafana. It has been recorded from 700 - 1,050m asl. Because of the similarity of this species to the other so-called painted mantellas (*M. baroni, M. bernhardi, M. cowani, M. haraldmeieri* and *M. pulchra*), old records from outside this area are not considered reliable, being more likely to refer to *M. baroni* or *M. pulchra.* A list of more recently accepted site records is provided in Glaw and Vences (2000). The area of occurrence is believed to be less than 20,000 km² (GAA, 2006). There is very little information on levels of abundance of the species."

Andreone and Glaw (2004) reported the following threats:

> "Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements. It is also possible that over-collecting for commercial and private purposes poses a threat, but this requires further investigation."

The species' presence has not been confirmed in any protected areas, but it was reported to occur close to the Ranomafana National Park boundary (Andreone and Glaw, 2004).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in the species is considered of least concern. Elimination from Review of Significant Trade."

No further recommendations were made at the 24th Meeting of the Animals Committee (CITES Secretariat, 2009).

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

| | |
|---|---|
| SPECIES: | *Mantella manery* |
| SYNONYMS: | - |
| COMMON NAMES: | Marojezy Mantella (English), Marojezy Mountain Mantella (English) |
| RANGE STATES: | Madagascar |
| RANGE STATE UNDER REVIEW: | Madagascar |
| IUCN RED LIST: | Data Deficient |
| PREVIOUS EC OPINIONS: | Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009. |

**TRADE PATTERNS:**

This species has never been recorded in international trade. No quotas have been established for the species.

**CONSERVATION STATUS in range states**

**Madagascar:** *Mantella manery* was classified as Data Deficient in the IUCN Red List (Raxworthy *et al.,* 2008), "in view of continuing uncertainties as to its extent of occurrence, status and ecological requirements." Its population status and trend were reported to be unknown, with the paucity of records indicating that the specie is rare (Raxworthy *et al.,* 2008).

IUCN (2008) provided the following information on status:

> "This species has been relatively recently described based on a single specimen in the collections of the Zoological Institute of the University Antananarivo collected from Marojejy National Park in northeastern Madagascar. The original description was based on a colour slide, but the holotype has since been found and a re-description has been published (GAA, 2006)."
>
> Raxworthy *et al.* (2008) reported the species occurrence in "Marojejy at 300m asl and Est Betaidambo in the Analabe Rainforest along Ramena River (west of Tsaratanana Reserve National Integral) at 700 m asl."

Edmonds (2009) found frogs that phenotypically appeared to be *M. manery* near the village of Ankazafa, several kilometres west of the town of Daraina (13°12.340S, 49°36.589E, 498 m asl), where the species was found to be locally abundant. This site is >80 km north of the previously known

localities (Analabe Forest and Marojejy National Park), significantly extending the species' known distribution (Edmonds, 2009).

Raxworthy *et al.* (2008) reported the following threats: "Its forest habitat is likely to be receding due to subsistence agriculture, timber extraction, charcoal manufacture, invasive spread of eucalyptus, livestock grazing and expanding human settlements. This species has not been recorded in international trade so far, but it might be in the future."

The small forest fragment at Ankazafa was reported to be unprotected and in an area used heavily for zebu grazing and agriculture (Edmonds, 2009).

The species was reported to occur in a single protected area: Marojejy National Park (Raxworthy *et al.,* 2008).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in the species is considered of least concern. Elimination from Review of Significant Trade."

No further recommendations were made at the 24th Meeting of the Animals Committee (CITES Secretariat, 2009).

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella milotympanum*

SYNONYMS: *Mantella aurantiaca milotympanum*

COMMON NAMES: Black-eared Golden Mantella (English), Black-eared Mantella (English)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Critically Endangered

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

IUCN (2008) reported that trade in this species was low, but may have been recorded under *M. aurantiaca* in the past.

The 2005 export quota was apparently exceeded. The quota excess, however, was caused by imports occurring on permits issued in the second half of the previous year and when these records are removed the imports are well below quota.

**Table 31. Direct exports of *Mantella milotympanum* from Madagascar to EU 27, 1997-2007. All trade was in wild-sourced specimens into Germany. [No indirect trade reported]**

| Term | Purpose | Reported by | 2003 | 2005 | 2007 | Total |
|---|---|---|---|---|---|---|
| bodies | S | Importer | | | | |
| | | Exporter | 2 | 5 | | 7 |
| live | T | Importer | | | | |
| | | Exporter | | 75 | 10 | 85 |
| specimens | S | Importer | | | | |
| | | Exporter | | 100 | | 100 |

**Table 32. Direct exports of *Mantella milotympanum* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | | | | |
| | | | Exporter | | | 10 | | | | 10 |

| Term | Source | Purpose | Reported by | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| live | W | T | Importer | 710 | 1780 | 850 | 1575 | 304 | 300 | 5519 |
| | | | Exporter | 1270 | | 2225 | 755 | 681 | 696 | 5627 |
| specimens | W | S | Importer | | | 10 | | | | 10 |
| | | | Exporter | | | 2 | | | | 2 |

**Table 33. CITES Export quotas for *Mantella milotympanum* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Quota | 1000 | 1000 | 1000 | 1000 | 0 |
| Reported by importer | 1575 | 304 | 300 | | |
| Reported by exporter | 830 | 681 | 706 | | |

## CONSERVATION STATUS in range states

**Taxonomic note:** IUCN (2008) reported that "The species was considered a form of *M. aurantiaca* until 1996, when it was elevated to species level (Frost, 2007). This species and *Mantella crocea* might represent colour variants of the same species (GAA, 2006)." Glaw and Vences (2007) reported that "The validity of this taxon is very dubious, a reliable distinction from *M. crocea* is not possible, neither by morphology, coloration nor by genetics."

**Madagascar:** *Mantella milotympanum* was classified as Critically Endangered in the IUCN Red List (Vences and Nussbaum, 2008), "because its area of occupancy is probably less than 10 km², its distribution is severely fragmented, and the extent of its forest habitat in east-central Madagascar is probably declining." It was described as a locally common species, observed at high densities, with a population trend of Decreasing (Vences and Nussbaum, 2008).

IUCN (2008) provided the following information on status:

> "*Mantella milotympanum* is recorded from many fragmented localities in east-central Madagascar covering a small area south of Fierenana, at 900 - 1,000m asl (GAA, 2006). It is a locally common species, and has been observed at high densities (GAA, 2006). Rapid population assessments using mark and recapture techniques carried out in 2003 and 2004 found population densities of between 1100 and 3600 individuals per hectare. However, the surveys were carried out over extremely small areas (625 m2) and the surveyors noted that these figures should not be used to derive population estimates for more extensive areas. A separate estimate, based on a larger area surveyed (6000 m²) produced a somewhat lower estimate (470 animals per hectare) (Vieites *et al.,* 2005). Vences *et al.* (2004) found high genetic (mitochondrial) diversity in sampled populations of *M. milotympanum* which were consistent with a large population size.
>
> The area where this species occurs is severely threatened, with its forest habitat receding due to the impacts of subsistence agriculture, timber extraction, charcoal production, the spread of eucalyptus, livestock grazing, fires, and expanding human settlements (GAA, 2006)."

Bora *et al.* (2008) identified four localities for *M. milotympanum* (Antanifotsy forest, Bemandotra forest, Sahalava forest and Sahamarolambo) and a further five localities for specimens preliminarily assigned to this species - *M. cf. milotympanum* (Ambatombolana, Andriambe, Andaingo, Mandrevo Amboa and Savakoanina). All localities were confirmed by recent observations (2003 onwards).

Vences and Nussbaum (2008) reported that in the past, the species had been collected in large numbers by commercial collectors, and that trade might pose a major threat. They recommended that any trade should be carefully regulated and that the population should be monitored.

The species is not known from any protected areas (Vences and Nussbaum, 2008).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in this species is considered of possible concern. Retain in Review of Significant Trade. Madagascar is asked to provide additional data on the population estimates and on the non-detriment finding in order for the AC to reconsider its status at AC24."

At the 24th Meeting of the Animals Committee (CITES Secretariat, 2009), the following recommendation was adopted: "Recommended for removal from the process of significant trade review because a zero quota has been set." However, it was noted that "If a party wants to re-establish a quota or resume trade in a species, it would need to provide population data and the details of the NDF to the satisfaction of the Animals Committee. If the Animals Committee is not satisfied, the species may be inserted into the process of significant trade review."

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella nigricans*

SYNONYMS: *Mantella cowanii nigricans*

COMMON NAMES: -

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Least Concern

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

IUCN (2008) reported that "*Mantella nigricans* was first recognised as a full species by Vences *et al*. (1999), having previously been considered a subspecies of *M. madagascariensis*. It is possible that some trade reported as in the latter species has in fact been in *M. nigricans*¸ although relatively little collection of amphibians takes place within the latter's range (Edwards, 2007)."

Rabemananjara *et al.* (2007; in: IUCN, 2008) noted that collection of this species only took place on an occasional basis and in low numbers in each year.

**Table 34. Direct exports of *Mantella nigricans* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens. [No indirect trade reported].**

| Importer | Term | Purpose | Reported by | 2001 | 2005 | 2006 | Total |
|---|---|---|---|---|---|---|---|
| Germany | bodies | S | Importer | | 2 | | 2 |
| | | | Exporter | | 2 | | 2 |
| | live | T | Importer | | | | |
| | | | Exporter | | 50 | | 50 |
| | specimens | S | Importer | | 50 | | 50 |
| | | | Exporter | | 50 | | 50 |
| Italy | bodies | S | Importer | | | | |
| | | | Exporter | | | 4 | 4 |
| Netherlands | bodies | T | Importer | | | | |
| | | | Exporter | 2 | | | 2 |

**Table 35. Direct exports of *Mantella nigricans* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2001 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | | | |
| | | | Exporter | 5 | 6 | | | | 11 |
| live | W | S | Importer | | | | | | |
| | | | Exporter | 5 | | | | | 5 |
| | | T | Importer | | 200 | 315 | 150 | 336 | 1001 |
| | | | Exporter | | 750 | 187 | 541 | 521 | 1999 |
| specimens | W | S | Importer | | 6 | | | | 6 |
| | | | Exporter | | 4 | | | | 4 |

**Table 36. CITES Export quotas for *Mantella nigricans* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Quota | 1000 | 1000 | 1000 | 1000 | 1000 |
| Reported by importer | 315 | 150 | 336 | | |
| Reported by exporter | 237 | 541 | 521 | | |

## CONSERVATION STATUS in range states

**Taxonomic note:** This species was elevated from subspecific to specific status by Vences, Glaw and Böhme (1999; in: Raxworthy and Andreone, 2004).

**Madagascar:** *Mantella nigricans* was classified as Least Concern in the IUCN Red List (Raxworthy and Andreone, 2004), "in view of its relatively wide distribution, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category." It was described as a locally abundant species with a population trend of Decreasing (Raxworthy and Andreone, 2004).

IUCN (2008) provided the following information on status:

> "*Mantella nigricans* occurs in northern and northeastern Madagascar from Tsaratanana south to Zahamena, at 100 - 1,000m asl. Much of this area is inaccessible. The range of the species is extensive and it is reportedly locally abundant (GAA, 2006). Its forest habitat is receding due to subsistence agriculture, timber extraction, charcoal manufacture, and invasive spread of eucalyptus, livestock grazing and expanding human settlements (GAA, 2006)."

Raxworthy and Andreone (2004) did not consider trade to be a current threat, but they recommended that any future trade should be carefully regulated.

The species was reported to occur in several protected areas (Raxworthy and Andreone, 2004).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in the species is considered of least concern. Elimination from Review of Significant Trade."

No further recommendations were made at the 24th Meeting of the Animals Committee (CITES Secretariat, 2009).

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella pulchra*

SYNONYMS: *Mantella cowanii pulchra*

COMMON NAMES: Beautiful Mantella (English), Parker's Mantella (English), Parker's Golden Frog (English), Splendid Mantella (English), spindelmantella (Swedish)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Vulnerable

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

IUCN (2008) reported that actual levels of export may have been higher, due to taxonomic confusion with *M. madagascariensis,* although Edwards (2007) noted that in the vast majority of cases, specimens exported as *M. madagascariensis* were in fact *M. baroni*.

IUCN (2008) reported that Andreone (2007) and Vences (2007) both considered an annual export quota of 3000 specimens to be sustainable.

The 2005 export quota was apparently exceeded. The quota excess, however, was caused by imports occurring on permits issued in the second half of the previous year and when these records are removed the imports are well below quota.

**Table 37. Direct exports of *Mantella pulchra* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens.**

| Importer | Term | Purpose | Reported by | 1998 | 1999 | 2000 | 2001 | 2002 | 2005 | 2006 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | live | T | Importer | 200 | | | | | | | 200 |
| | | | Exporter | | | | | | | | |
| France | live | T | Importer | 50 | 450 | | | | | | 500 |
| | | | Exporter | | | 75 | 15 | | | | 90 |
| Germany | bodies | S | Importer | | | | | | | 3 | 3 |
| | | | Exporter | | | | | | | 3 | 3 |
| | live | T | Importer | 109 | 160 | | | | | | 269 |
| | | | Exporter | | | | | 20 | 50 | 25 | 95 |

| Importer | Term | Purpose | Reported by | 1998 | 1999 | 2000 | 2001 | 2002 | 2005 | 2006 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Netherlands | bodies | T | Importer | | | | | | | | |
| | | | Exporter | | | | 2 | | | | 2 |
| | live | T | Importer | 400 | 295 | | | | | | 695 |
| | | | Exporter | | | | | | | | |
| Spain | live | T | Importer | 25 | | | | | | | 25 |
| | | | Exporter | | | | 30 | | | | 30 |
| United Kingdom | live | T | Importer | | | | | | | | |
| | | | Exporter | | | | | 50 | | | 50 |
| **Subtotals** | bodies | | Importer | | | | | | | 3 | 3 |
| | | | Exporter | | | | 2 | | | 3 | 5 |
| | live | | Importer | 784 | 905 | | | | | | 1689 |
| | | | Exporter | | | 75 | 45 | 70 | 50 | 25 | 265 |

**Table 38. Indirect exports of *Mantella pulchra* originating in Madagascar to EU-27, 1997-2007. All trade was in live specimens.**

| Exporter | Importer | Purpose | Source | Reported by | 2003 | 2005 | Total |
|---|---|---|---|---|---|---|---|
| Canada | Denmark | T | W | Importer | | | |
| | | | | Exporter | | 12 | 12 |
| Switzerland | Germany | - | R | Importer | | | |
| | | | | Exporter | | 12 | 12 |
| United States | Denmark | T | W | Importer | | | |
| | | | | Exporter | 2 | | 2 |

**Table 39. Direct exports of *Mantella pulchra* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | | | | | | |
| | | | Exporter | | | | | 8 | | 5 | | 13 |
| live | R | T | Importer | | 225 | | | 120 | | | | 345 |
| | | | Exporter | | | | | 120 | | | | 120 |
| | W | P | Importer | | | | | | | | | |
| | | | Exporter | 20 | 20 | | | | | | | 40 |
| | | T | Importer | 270 | 1433 | 1870 | 2585 | 2085 | 3455 | 1269 | 690 | 13657 |
| | | | Exporter | 3202 | 4385 | 2820 | | 5337 | 1502 | 1960 | 1443 | 20649 |
| specimens | W | S | Importer | | | | | 5 | | 1 | | 6 |
| | | | Exporter | | | | | | | | | |

**Table 40. CITES Export quotas for *Mantella pulchra* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Quota | 3000 | 3000 | 3000 | 3000 | 3000 |
| Reported by importer | 3455 | 1269 | 690 | | |
| Reported by exporter | 1552 | 1985 | 1443 | | |

## CONSERVATION STATUS in range states

**Taxonomic note:** This species is closely related to *Mantella madagascariensis* (F. Glaw pers. comm. in: Raxworthy and Glaw, 2004).

**Madagascar:** *Mantella pulchra* was classified as Vulnerable in the IUCN Red List (Raxworthy and Glaw, 2004), "because its Extent of Occurrence is less than 20,000 km$^2$, its distribution is severely fragmented, and there is continuing decline in the extent and quality of its forest habitat in northeastern Madagascar. It was reported to be a rare species with a population trend of Declining (Raxworthy and Glaw, 2004).

IUCN (2008) provided the following information on status:

> "*Mantella pulchra* species has been recorded in northeastern Madagascar from Mananara-Nord south to An'Ala, at 300 - 950m asl (GAA, 2006).
>
> The GAA (2006) notes that the species occurs at low densities. However, a rapid population assessment, using mark and recapture techniques, carried out at a single site (An'Ala) in January 2004 estimated a population density of just over 2500 animals per hectare, which was moderately high for mantellas (Rabemananjara *et al.,* 2008). The surveyors noted that this was based on the survey of a very small area (400 m2) and should not be used to derive population estimates over larger areas.
>
> Its forest habitat is receding due to subsistence agriculture, timber extraction, charcoal manufacture, and invasive spread of eucalyptus, livestock grazing and expanding human settlements (GAA, 2006)."

Raxworthy and Glaw (2004) reported that over-collecting for commercial and private purposes was possibly a threat, but that it required further investigation; they stressed the need for careful regulation of trade.

The species was reported to occur in the Mananara-Nord Biosphere Reserve and the Ambatovaky Special Reserve, and probably also in others (GAA, 2006; in: IUCN, 2008).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in the species is considered of least concern. Elimination from Review of Significant Trade."

No further recommendations were made at the 24th Meeting of the Animals Committee (CITES Secretariat, 2009).

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REVIEW OF SPECIES FROM MADAGASCAR SUBJECT TO LONG-STANDING IMPORT SUSPENSIONS

**AMPHIBIA MANTELLIDAE**

SPECIES: *Mantella viridis*

SYNONYMS: -

COMMON NAMES: Green Golden Frog (English), Green Mantella (English), Lime Mantella (English), grön mantella (Swedish)

RANGE STATES: Madagascar

RANGE STATE UNDER REVIEW: Madagascar

IUCN RED LIST: Endangered

PREVIOUS EC OPINIONS: Current Article 4.6 (b) suspensions for wild specimens from Madagascar first applied on 02/02/2001 and last confirmed on 21/05/2009.

**TRADE PATTERNS:**

IUCN (2008) reported that Andreone *et al.* (2006) believed that the export quota of 1000 specimens a year was easily sustainable and that Andreone (2007) further considered that it could be increased somewhat without undue concern.

The 2005 export quota was apparently exceeded. The quota excess, however, was caused by imports occurring on permits issued in the second half of the previous year and when these records are removed the imports are well below quota.

**Table 41. Direct exports of *Mantella viridis* from Madagascar to EU-27, 1997-2007. All trade was in wild-sourced specimens.**

| Importer | Term | Purpose | Reported by | 1997 | 1998 | 1999 | 2001 | 2002 | 2003 | 2004 | 2005 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | live | T | Importer | 125 | 300 | | | | | | | | 425 |
| | | | Exporter | | | | | | | | | | |
| France | live | T | Importer | | | | | | | | | | |
| | | | Exporter | | | | 15 | | | | | | 15 |
| Germany | bodies | S | Importer | | | | | | 1 | 3 | | 5 | 9 |
| | | | Exporter | | | | | | 3 | 3 | | | 6 |
| | live | T | Importer | | 195 | 100 | | | | | | | 295 |
| | | | Exporter | | | | | 20 | | | 50 | | 70 |
| | specimens | S | Importer | | | | | | | 5 | | | 5 |
| | | | Exporter | | | | | | | 5 | 50 | | 55 |
| Italy | bodies | S | Importer | | | | | | | | | | |
| | | | Exporter | | | | | | | | 46 | | 46 |

| Importer | Term | Purpose | Reported by | 1997 | 1998 | 1999 | 2001 | 2002 | 2003 | 2004 | 2005 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Netherlands | live | T | Importer | | 175 | 285 | | | | | | | 460 |
| | | | Exporter | | | | | | | | | | |
| Spain | live | T | Importer | | 20 | | | | | | | | 20 |
| | | | Exporter | | | | | | | | | | |
| United Kingdom | live | T | Importer | | | | | | | | | | |
| | | | Exporter | | | | | 100 | | | | | 100 |
| **Subtotals** | bodies | | Importer | | | | | | 1 | 3 | | 5 | 9 |
| | | | Exporter | | | | | | 3 | 3 | 46 | | 52 |
| | live | | Importer | 125 | 690 | 385 | | | | | | | 1200 |
| | | | Exporter | | | | 15 | 120 | | | 50 | | 185 |
| | specimens | | Importer | | | | | | | 5 | | | 5 |
| | | | Exporter | | | | | | | 5 | 50 | | 55 |

The only indirect trade reported originating in Madagascar referred to 12 live specimens (source W, purpose T) reported by Canada as exports to Denmark. Denmark did not report this transaction.

**Table 42. Direct exports of *Mantella viridis* from Madagascar to countries other than EU-27, 1997-2007.**

| Term | Source | Purpose | Reported by | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| bodies | W | S | Importer | | | | | | | | | |
| | | | Exporter | | | | | 10 | | | | 10 |
| live | R | T | Importer | | 175 | | | 50 | | | | 225 |
| | | | Exporter | | | | | 50 | | | | 50 |
| | U | T | Importer | 42 | | | | | | | | 42 |
| | | | Exporter | | | | | | | | | |
| | W | P | Importer | | | | | | | | | |
| | | | Exporter | 20 | 20 | | | | | | | 40 |
| | | T | Importer | 1392 | 2770 | 1110 | 2065 | 905 | 1460 | 295 | 181 | 10178 |
| | | | Exporter | 1901 | 3810 | 2250 | 200 | 2006 | 828 | 711 | 525 | 12231 |
| specimens | W | S | Importer | | | | 2 | 10 | | | | 12 |
| | | | Exporter | | | | 2 | 7 | | | | 9 |

**Table 43. CITES Export quotas for *Mantella viridis* from Madagascar and associated global exports, reported by importer and exporter. All quotas refer to live wild specimens.**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Quota | 1000 | 1000 | 1000 | 1000 | 250 |
| Reported by importer | 1460 | 295 | 181 | | |
| Reported by exporter | 878 | 711 | 525 | | |

## CONSERVATION STATUS in range states

**Madagascar:** *Mantella viridis* was classified as Endangered in the IUCN Red List (Andreone *et al.,* 2004), "because its Extent of Occurrence is less than 5,000 km², its distribution is severely fragmented, and there is continuing decline in the extent and quality of its habitat." It was described as a common species, albeit very localized, with a population trend of Decreasing (Andreone *et al.,* 2004).

IUCN (2008) provided the following information on status:

> "*Mantella viridis* occurs in extreme northern Madagascar, principally on the Montagne des Français and the Massif of Antogombato which lies south of Diego Suarez (Antsiranana), at 50-300m asl, and also in the Montagne d'Ambre region (GAA, 2006). Recent fieldwork (Andreone *et al.,* 2006) has found the species to be more widespread in the area than previously thought.

The species is reportedly common within its limited range and can reach very high population densities, for example around Antongombato (Andreone, 2007). Rapid population assessments using mark-and-recapture methods carried out on four occasions and at two different locations in 2003 found very dense breeding aggregations of frogs (up to 680 individuals in 50 $m^2$) (Rabemananjara *et al.,* 2008). These cannot be quantitatively extrapolated to larger areas but indicate that the species can be at least locally extremely abundant.

The area where *Mantella viridis* occurs is subject to the impacts of fires, selective logging and collection of firewood, and livestock grazing, although as noted above the species can survive in some modified habitats (GAA, 2006)."

In a 2005 survey, *M. viridis* were found at a number of new sites and the species was recorded in a range of different habitat conditions, indicating adaptability to secondary, degraded and human perturbed habitats (Mercurio and Andreone, 2008). The species was reported to be locally abundant in some areas (Mercurio and Andreone, 2008).

Andreone *et al.* (2004) reported that whilst the main threat was habitat loss, *M. viridis* was also affected by the permanent drying out of smaller streams following forest loss, and that it had previously been collected in relatively large numbers for the pet trade. It was recommended that any future trade should be carefully regulated (Andreone *et al.,* 2004).

The species was reported to occur within at least one classified forest, and to have been recently recorded within Montagne d'Ambre National Park (Andreone *et al.,* 2006; GAA, 2006; in: IUCN, 2008).

At the 23rd Meeting of the Animals Committee (CITES Secretariat, 2008), the following recommendation was adopted: "Trade in this species is considered of possible concern. Retain in Review of Significant Trade. Madagascar is asked to provide additional data on the population estimates and on the non-detriment finding in order for the AC to reconsider its status at AC24."

At the 24th Meeting of the Animals Committee (CITES Secretariat, 2009), the working group recommended this species to be retained in the process and proposed the following additional recommendations:

"a) a zero quota be established.

b) Madagascar should find the resources for a long term standardized monitoring programme for the three species to be able to monitor the population trends in protected and unprotected areas and the effect of trade, should it be resumed. For reference to such standardized monitoring programme, refer for example to AC24 Doc. 9.1 – p.25, Measuring and Monitoring Biological Diversity – Standard methods for Amphibians.

c) on the basis of the information received and the results stemming from these programmes, such as population estimates and NDFs, precautionary quotas may be set in the future.

d) adaptive management strategies should be implemented."

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# ANNEX I. PURPOSE AND SOURCE CODES

**Purpose of trade**

| Code | Description |
|---|---|
| **B** | Breeding in captivity or artificial propagation |
| **E** | Educational |
| **G** | Botanical gardens |
| **H** | Hunting trophies |
| **L** | Enforcement (e.g. evidence for use in court, specimens for training) |
| **M** | Bio-medical research |
| **N** | Reintroduction or introduction into the wild |
| **P** | Personal |
| **Q** | Circuses and travelling exhibitions |
| **S** | Scientific |
| **T** | Commercial / Trade |
| **Z** | Zoos |

**Source of specimens**

| Code | Description |
|---|---|
| **A** | Plants that are artificially propagated in accordance with Resolution Conf. 11.11 (Rev. CoP13), paragraph a), as well as parts and derivatives thereof, exported under the provisions of Article VII, paragraph 5 (specimens of species included in Appendix I that have been propagated artificially for non-commercial purposes and specimens of species included in Appendices II and III) |
| **C** | Animals bred in captivity in accordance with Resolution Conf. 10.16 (Rev.), as well as parts and derivatives thereof, exported under the provisions of Article VII, paragraph 5 (specimens of species included in Appendix I that have been bred in captivity for non-commercial purposes and specimens of species included in Appendices II and III) |
| **D** | Appendix-I animals bred in captivity for commercial purposes and Appendix-I plants artificially propagated for commercial purposes, as well as parts and derivatives thereof, exported under the provisions of Article VII, paragraph 4 of the Convention |
| **F** | Animals born in captivity (F1 or subsequent generations) that do not fulfil the definition of 'bred in captivity' in Resolution Conf. 10.16 (Rev.), as well as parts and derivatives thereof |
| **I** | Confiscated or seized specimens |
| **O** | Pre-Convention specimens |
| **R** | Specimens originating in a ranching operation |
| **U** | Source unknown |
| **W** | Specimens taken from the wild |