Review of *Calumma* and *Furcifer* species from Madagascar

Species subject to increased quotas in 2014 following removal of long-standing CITES and EU suspensions

(Version edited for public release)
Review of *Calumma* and *Furcifer* species from Madagascar. Species subject to increased quotas in 2014 following removal of long-standing CITES and EU suspensions

Prepared for
The European Commission, Directorate General Environment, Directorate E - Global & Regional Challenges, LIFE ENV.E.2. – Global Sustainability, Trade & Multilateral Agreements, Brussels, Belgium

Prepared June 2015

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Citation
UNEP-WCMC. 2015. Review of *Calumma* and *Furcifer* species from Madagascar. Species subject to increased quotas in 2014 following removal of long-standing CITES and EU suspensions. UNEP-WCMC, Cambridge.

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Introduction

This document provides a review of the *Calumma* and *Furcifer* genera from Madagascar, with particular focus on 14 species selected for more in-depth review. These are species subject to EU no opinion i) (no trade anticipated), for which, however, quotas increased in 2014$^1$ and these quotas were maintained in 2015, following removal of long-standing CITES and EU suspensions. Therefore, the EU no opinion i) may no longer be appropriate.

The Scientific Review Group (SRG) selected the following species from Madagascar for more in-depth review:

- *Calumma boettgeri*
- *Calumma brevicorne*
- *Calumma gastrotaenia*
- *Calumma guillaumeti*
- *Calumma malthe*
- *Calumma marojezense*
- *Calumma nasutum*
- *Calumma oshaughnessyi*
- *Calumma parsonii*
- *Furcifer antimena*
- *Furcifer bifidus*
- *Furcifer campani*
- *Furcifer petteri*
- *Furcifer willsi*

This report includes a review of *C. parsonii*, which was selected for review following analysis of 2014 trade quotas (SRG68 document), and was assessed at SRG69 to determine whether trade would have a harmful effect on the conservation status of this species or on the extent of the territory it occupied. A no opinion ii) (decision deferred) was formed, based on insufficient data on the species.

Input has been sought from Dr. Richard Jenkins and Dr. Frank Glaw (IUCN Chameleon Specialist Group), both the Scientific and Management Authorities of Madagascar, and the CITES Secretariat.

The CITES Secretariat replied on 02/06/2015 and provided document AC25 Doc. 9.2 Addendum in response to the enquiry, which provides information on those species for which zero quotas were established in 2011 and 2012. Further information on the basis of the non-zero quotas established in 2014 and 2015, which appear to have resulted from Animals Committee recommendations, was requested on 02/06/2015. The Secretariat confirmed on 03/06/2015 that they could not identify a separate document which would provide the background of these discussions/recommendations.

At the time of submission of this report, no further information had been received from Dr. Richard Jenkins and Dr. Frank Glaw.

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$^1$ Quotas for *F. campani* were published at 250 for 2012-2015.
Overview of status and management of *Calumma* spp. and *Furcifer* spp. in Madagascar

Madagascar is a key biodiversity hotspot for chameleons, with almost half of all known species endemic to the island (Glaw and Vences, 2007). This section provides information on the status and trends of *Calumma* spp. and *Furcifer* spp. within Madagascar, threats affecting them, and management actions taken to ensure sustainability of the trade.

**Taxonomy**

The genus *Chamaeleo* was revised by Klaver and Böhme (1986), resulting in two new genera: *Calumma* and *Furcifer* (IUCN/SSC Trade Specialist Group, 1993); both are generally medium- to large-sized, arboreal and colourful (Glaw and Vences, 2007). The CITES standard nomenclatural references recognise 33 *Calumma* species (Andreone *et al.*, 2001; Böhme, 1997; Gehring *et al.*, 2010, 2011; Glaw and Vences, 2007; Klaver and Böhme, 1997; Lutzmann and Lutzmann, 2004; Raxworthy and Nussbaum, 2006; Walbröl and Walbröl, 2004) and 21 *Furcifer* species (Glaw *et al.*, 2009; Jesu *et al.*, 1999; Klaver and Böhme, 1997). It was noted that the genus *Calumma* includes taxa of uncertain taxonomic status (Raxworthy and Nussbaum, 2006).

**Status and trends**

*Calumma* species are endemic to Madagascar (Glaw and Vences, 2007). They are restricted to humid areas (Glaw and Vences, 2007), from sea level to high elevations (Randrianantoandro *et al.*, 2009), generally in undisturbed primary habitats, although *C. boettgeri*, *C. nasutum*, and *C. brevicorne* can occur in degraded areas (Glaw and Vences, 2007). The greatest species richness of this genus was reported from northern Madagascar (Raxworthy and Nussbaum, 2006); no records were reported from the dry southwest (Glaw and Vences, 2007).

With the exception of two Comorian species, *Furcifer* spp. are endemic to Madagascar (Glaw and Vences, 2007). Most inhabit arid areas in the west on Madagascar (Glaw and Vences, 2007); a few species only are exclusively found in rainforest areas (Glaw and Vences, 2007). It was noted that *Furcifer* spp. can adapt to degraded and secondary habitats, where they can be very common (Glaw and Vences, 2007).

Out of the 14 *Calumma* and *Furcifer* species under review that have been assessed in the IUCN Red List, four were considered Vulnerable, two Near Threatened and eight Least Concern; 12 species had declining population trends and for two the trend was considered unknown (IUCN, 2015).

Durkin *et al.* (2011) noted that the herpetofauna of Madagascar remained understudied, especially outside of protected areas. It was noted that although recent efforts have been made to improve understanding of Madagascan reptiles (Jenkins *et al.*, 2014), knowledge of species’ distribution and abundance, and the condition and extent of remaining habitat is incomplete (Durkin *et al.*, 2011; Jenkins *et al.*, 2014).
Threats
The primary threat to Malagasy chameleons was reported to be the rapid destruction and degradation of habitat, especially forests (Andreone et al., 2009; Jenkins et al., 2014; Raxworthy, 1988b). Forest cover decreased almost 40% from the 1950s to 2000 (Harper et al., 2007). Over the period 1990 to 2000, the rate of deforestation was estimated at 0.83% per year, declining to 0.53% per year from 2000-2005, and to 0.4% per year between 2005 and 2010 (MEFT et al., 2009; ONE et al., 2013). Malagasy chameleons may be particularly vulnerable to these threats as a number of species have localised distributions and are restricted to intact forests (Brady and Griffiths, 1999; Durkin et al., 2011; Randrianantoandro et al., 2009). High altitude species were also considered potentially at risk from up-slope displacement due to climate change (Raxworthy et al., 2008).

Exploitation for trade was also considered a threat (CBSG, 2001; Jenkins et al., 1999, 2014). Chameleons were considered perhaps the most targeted group of Madagascar's herpetofauna (Jenkins et al., 1999), with some chameleons in high demand in the pet trade (Jenkins et al., 2014). Endemic or species with restricted ranges, including Furcifer campani, Calumma brevicorne and C. parsonii, were considered particularly at risk (Carpenter et al., 2004). Trade of Calumma and Furcifer species increased rapidly in the late 1980s and early 1990s as a result of liberalisation of export controls in 1988 (Ordonnance No. 88-015) (Carpenter et al., 2005) and Madagascar became a significant exporter of chameleons (Brady and Griffiths, 1999). Seven species were reported to have accounted for 94% of trade between 1977 and 2001, including Calumma brevicorne, C. parsonii, and F. campani (Carpenter et al., 2004).

Todd (2011) considered Thailand to be a major route for illegally traded Malagasy reptiles and reported that specimens of Calumma and Furcifer were recorded in illegal trade.

Protection and management
CITES Processes
In 1994/95, the CITES Standing Committee recommended that all Parties suspend imports of chameleons from Madagascar, with the exception of Furcifer lateralis, F. oustaleti, F. pardalis and F. verrucosus (CITES Notification No. 833). This followed the CITES Review of Significant Trade of 1993, which concluded that increased trade levels of chameleons may be detrimental to wild populations, and that the species in trade were poorly known (Jenkins et al., 1999).

Following the CITES Review of Significant Trade of 1993, the Animals Committee recommended an investigation of the biological basis for determining whether exports of chameleons from Madagascar are non-detrimental to the survival of species, with the aim of collecting information on the status of chameleons for which recent trade levels had given rise to concern (Brady and Griffiths, 1999). The species identified as most at risk by the Animals Committee included Calumma brevicornis*, C. globifer, C. nasuta*, C. parsonii*, Furcifer antrema*, F. balteatus, F. campani*, F. minor and F. willsi"* (Brady and Griffiths, 1999) (*species under review in this document). Madagascar was also selected for the first country-based Review of Significant Trade in 2001, at the 17th meeting of the Animals Committee (AC19 Doc. 8.4). This review came to an end in 2008, but the recommendations to suspend trade in the majority of chameleons from Madagascar remained in force (AC24 Doc. 7.2).

The Animals Committee was requested to re-evaluate trade in chameleons from Madagascar at the 57th meeting of the Standing Committee, and the CITES Secretariat subsequently commissioned a study to assess whether international trade would be in accordance with Article IV of the Convention (AC25 Doc 9.2 Addendum). The study included a categorisation of chameleon species into four different categories (Table 1), which indicated whether or not international trade could be permitted (AC24 Doc. 7.2 Annex). However, the 24th meeting of the
Animals Committee did not consider the provisions of Article IV to be met for these (and other) taxa, and the suspension was maintained (AC25 Doc. 9.2 Addendum).

Six conditions were established by the 24th meeting of the Animals Committee (SC58 Doc. 21.3; SC62 Doc. 27.2) which had to be met in order for the suspension to be removed. These included:

- establishment of conservative export quotas “based on estimates of sustainable offtake and scientific information” with data and information demonstrating that the quotas would not have a detrimental impact on the wild population;
- conducting a status assessment and developing an internationally agreed population monitoring programme for the species; and
- basing any changes to the annual export quota on the results of this assessment and monitoring programme (SC58 Doc. 21.3; SC62 Doc. 27.2).

Based on the decision of the 58th meeting of the Standing Committee, the 25th meeting of the Animals agreed on zero export quotas for Calumma boettgeri, C. guillaumeti, C. marojezense, C. oshaughnessyi, Furcifer bifidus, F. petteri, and F. willsi from Madagascar (AC25 summary record). These recommendations for zero quotas appear to be based on information submitted in AC25 Doc. 9.2 Addendum; this document provides a reassessment of the categorisation (Table 1) provided in the previous study (AC24 Doc. 7.2 Annex). The Standing Committee subsequently withdrew the CITES trade suspension for Calumma boettgeri, C. guillaumeti, C. malthe, C. marojezense, C. oshaughnessyi, Furcifer bifidus, F. petteri, and F. willsi from Madagascar in 2011 (CITES Notification No. 2011/035), and for Calumma brevicorne, C. gastrotaenia, C. nasutum, C. parsonii, Furcifer antimena, and F. campani in 2012 (CITES Notification No. 2012/048).

Table 1: Categorisation by Madagascar of the species under review in this document

<table>
<thead>
<tr>
<th>Species</th>
<th>AC24 Doc. 7.2 Annex</th>
<th>AC25 Doc. 9.2 Addendum</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. boettgeri</td>
<td>C4 (moderate collection)</td>
<td>C3 (limited collection)</td>
</tr>
<tr>
<td>C. brevicorne</td>
<td>C4 (moderate collection)</td>
<td>C4 (moderate collection)</td>
</tr>
<tr>
<td>C. gastrotaenia</td>
<td>C4 (moderate collection)</td>
<td>C4 (moderate collection)</td>
</tr>
<tr>
<td>C. guillaumeti</td>
<td>C3 (limited collection)</td>
<td>C3 (limited collection)</td>
</tr>
<tr>
<td>C. malthe</td>
<td>C4 (moderate collection)</td>
<td>C4 (moderate collection)</td>
</tr>
<tr>
<td>C. marojezense</td>
<td>C3 (limited collection)</td>
<td>C3 (limited collection)</td>
</tr>
<tr>
<td>C. nasutum</td>
<td>C4 (moderate collection)</td>
<td>C4 (moderate collection)</td>
</tr>
<tr>
<td>C. oshaughnessyi</td>
<td>C4 (moderate collection)</td>
<td>C3 (limited collection)</td>
</tr>
<tr>
<td>C. parsonii</td>
<td>C3/C4 (limited collection/ moderate collection)</td>
<td>C3 (limited collection)</td>
</tr>
<tr>
<td>F. antimena</td>
<td>C3 (limited collection)</td>
<td>C3 (limited collection)</td>
</tr>
<tr>
<td>F. bifidus</td>
<td>C2/C3 (insufficient information to determine collection/limited collection)</td>
<td>C2 (insufficient information – trade suspension recommended)</td>
</tr>
<tr>
<td>F. campani</td>
<td>C3 (limited collection)</td>
<td>C3 (limited collection)</td>
</tr>
<tr>
<td>F. petteri</td>
<td>C3 (limited collection)</td>
<td>C3 (limited collection)</td>
</tr>
<tr>
<td>F. willsi</td>
<td>C3 (limited collection)</td>
<td>C3 (limited collection)</td>
</tr>
</tbody>
</table>

At its 26th meeting (AC26, Geneva, March 2012), the Animals Committee endorsed the following export quotas proposed by Madagascar: 250 live specimens of Furcifer campani for 2012 and 2013,

\(^1\) as well as a number of other species not under review in this document
and zero export quotas for *Calumma brevicorne*, *C. gastrotaenia*, *C. nasutum*, *C. parsonii*, and *Furcifer antimena* (SC62 Doc. 27.2).

EU import suspensions were recommended for removal and replaced with a no opinion i) no significant trade anticipated (formed on 02/12/2011) for *Calumma boettgeri*, *Calumma guillaumeti*, *Calumma malthe*, *Calumma marojezense*, *Calumma oshaughnessyi*, *Furcifer bifidus*, *Furcifer petteri*, and *Furcifer willsii* (Short summary of conclusions SRG58) and on 07/02/2013 for *Calumma brevicorne*, *Calumma gastrotaenia*, *Calumma nasutum*, *Calumma parsonii*, *Furcifer antimena*, and *Furcifer campani* (Short summary of conclusions SRG63).

**Quotas and collection**

Following the removal of the CITES trade suspension, Madagascar published zero quotas for the majority of species under review in this document. In 2014 and 2015, however, increased quotas were published (except for *Furcifer campani*), some of which indicating that they resulted from recommendations of the Animals and Standing Committees (Table 2). There appears to be no documents which show that these 2014 and 2015 quotas result from recommendations made by the Animals Committee, other than AC25 Doc. 9.2 Addendum, which appears to primarily be the basis for the mostly zero quotas endorsed for 2012/2013.

**Table 2: CITES export quotas published by Madagascar 2011-2015 for the species under review in this document**

<table>
<thead>
<tr>
<th>Species</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>C. boettgeri</em></td>
<td>0</td>
<td>°0</td>
<td>0</td>
<td>°500</td>
<td>°500</td>
</tr>
<tr>
<td><em>C. brevicorne</em></td>
<td>0</td>
<td>°0</td>
<td>°0</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td><em>C. gastrotaenia</em></td>
<td>0</td>
<td>°0</td>
<td>°0</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td><em>C. guillaumeti</em></td>
<td>0</td>
<td>°0</td>
<td>0</td>
<td>°500</td>
<td>°500</td>
</tr>
<tr>
<td><em>C. malthe</em></td>
<td>0</td>
<td>°0</td>
<td>0</td>
<td>°500</td>
<td>°500</td>
</tr>
<tr>
<td><em>C. malthe</em></td>
<td>0</td>
<td>°0</td>
<td>0</td>
<td>°500</td>
<td>°500</td>
</tr>
<tr>
<td><em>C. nasutum</em></td>
<td>0</td>
<td>°0</td>
<td>°0</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td><em>C. oshaughnessyi</em></td>
<td>0</td>
<td>°0</td>
<td>°0</td>
<td>°250</td>
<td>°250</td>
</tr>
<tr>
<td><em>C. parsonii</em></td>
<td>-</td>
<td>°0</td>
<td>°0</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td><em>F. antimena</em></td>
<td>-</td>
<td>°0</td>
<td>°0</td>
<td>°150</td>
<td>°150</td>
</tr>
<tr>
<td><em>F. bifidus</em></td>
<td>0</td>
<td>°0</td>
<td>0</td>
<td>°500</td>
<td>°500</td>
</tr>
<tr>
<td><em>F. campani</em></td>
<td>-</td>
<td>°250</td>
<td>°250</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td><em>F. petteri</em></td>
<td>0</td>
<td>°0</td>
<td>0</td>
<td>°100</td>
<td>°100</td>
</tr>
<tr>
<td><em>F. willsii</em></td>
<td>0</td>
<td>°0</td>
<td>0</td>
<td>°500</td>
<td>°500</td>
</tr>
</tbody>
</table>

^ Export quotas endorsed by AC25.
* Export quotas endorsed by AC26.
° Indicated as “Resulting from recommendations of the Animals Committee, Plants Committee and the Standing Committee” within the published quotas

Collection sites of *Calumma* and *Furcifer* species were reported to be poorly known (Carpenter et al., 2005). Carpenter (2003) recommended that, in future, the location of collection must be given and monitoring of the harvest sites should be carried out by independent, qualified observers.

Mortality of individuals in transit was considered very high and often undocumented (IUCN/SSC Trade Specialist Group, 1993). It was reported that captive breeding is unlikely to provide a sufficient supply to meet the demand for chameleon species as pets (Jenkins et al., 2014), due to specialised husbandry requirements (de Vosjoli, 1990 in Jenkins et al., 1999; Ferguson et al., 2002 in Todd, 2011), which makes maintaining and breeding chameleons in captivity difficult (Todd, 2011; IUCN/SSC Trade Specialist Group, 1993). The turnover of Malagasy chameleons in trade was reported to be high (Todd, 2011), due to their specific husbandry requirements (Ferguson et al., 2002), short life
spans (Glaw and Vences, 2007), and low captive breeding success (ISIS, 2010), which resulted in higher death rates than other lizards in trade (Todd, 2011).

**Regulatory background in Madagascar**

Following a period of political instability in 2002, the CITES Management Authority of Madagascar introduced a six-month moratorium on all international trade in native species of fauna and flora (Rabesihanaka et al., 2008). In accordance with the recommendations of the CITES Animals and Plants Committees, a Review of Significant Trade was conducted at the country level in Madagascar, which resulted in the creation of a CITES Action Plan for the reform of Madagascar’s wildlife export and the establishment of an operational Scientific Authority (Rabesihanaka et al., 2008). Concurrently, Madagascar adopted several pieces of legislation relating to wildlife trade (Ministère de l'Environnement des Eaux et Forêts, 2006):

- Decree No. 2006-098 of 31 January 2006 concerning the publication of the revised Appendices to CITES;
- Decree No. 2006-400 from 13 June 2006 on the classification of species of wildlife. The wildlife species of Madagascar are classified into three categories: protected (Category 1), harmful (Category 2) and game (Category 3).

Under Decree No. 2006-400, *Calumma guillaumeti, C. marojezense, C. boettgeri, C. brevicornis, C. gastrotaenia, C. malthe, C. nasuta, C. oshaughnessyi, C. parsonii, Furcifer antimena, F. campani, F. bifidus, F. petteri*, and *F. willsii* are classified as Category 1, Class 2 (protected) species, which means authorisation from the relevant in-country CITES authorities is required for the collection of the species from the wild.

A review of Malagasy wildlife trade policy found that procedures and agency staff changed frequently, communication between agencies and participants in trade was weak, there were numerous gaps in the understanding of CITES, and there was a lack of funding (UNEP and UNCTAD, 2008). As a result, implementation of national wildlife laws was considered poor (UNEP and UNCTAD, 2008). The review also noted “exports exceeding quotas, questionable data employed in the setting of quotas and widespread illegal trafficking” (UNEP and UNCTAD, 2008; Todd, 2011).

**Protected areas**

Jenkins et al. (2014) estimated that 40% of the geographic range of Malagasy reptiles was within the national network of protected areas, including the most threatened endemic reptiles in Madagascar. In 2003, Madagascar’s President Ravalomanana pledged to triple the coverage of protected areas in the country to six million hectares within five years (Durban Vision), which corresponds to around 10% of the total land area (IUCN, 2008; USAID, 2008), to be undertaken through the establishment of the Système d’Aires Protégées de Madagascar (SAPM). In 2008, parks covered 9.4% of the land surface, representing 5,554,095 hectares (Allnutt et al., 2009). It was noted that the Durban Vision process was ongoing and new protected areas are being created (Randrianantoandro et al., 2011). In 2013, WWF (2013) reported that a Protected Area network covering more than six million hectares was in place in Madagascar.
However, habitat loss and direct exploitation of reptiles was nevertheless reported to occur within the boundaries of protected areas (Jenkins et al., 2014). D’Cruze et al. (2009) reported that herpetological conservation efforts had focussed more on Madagascar’s evergreen rainforest than on dry deciduous forests, spiny forest and savannah areas.
SAURIA: CHAMAELEONIDAE

**Calumma boettgeri II/B**

| SYNONYMS: | Chamaeleo boettgeri, Chamaeleon boettgeri, Chamaeleo macrorhinus |
| COMMON NAMES: | Boettger's Chameleon (EN), Caméléon de Boettger (FR), Camaleón de Boettger (ES) |
| RANGE STATES: | Madagascar |
| UNDER REVIEW: | Madagascar |
| EU DECISIONS: | Current no opinion i) for wild specimens from Madagascar formed on 02/12/2011. Previous Article 4.6(b) import restriction for wild specimens first applied on 19/09/1999 and last confirmed on 07/09/2011. |
| IUCN: | Least Concern |

**Taxonomic Note**

*Calumma boettgeri* was understood to be a species complex (Gehring *et al.*, 2012), and was considered in need of taxonomic revision (Andreone *et al.*, 2009). *Calumma linotum* was reported to have proven difficult to distinguish from *C. boettgeri*, and was tentatively assigned as a synonym of *C. boettgeri* (Glaw and Vences, 2007).

**Trade patterns**

The genus *Calumma* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo spp.*) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for *Calumma boettgeri*, whereas in 2014 a quota for 500 (term not specified) and in 2015 a quota for 500 live specimens was published.

Direct exports of *C. boettgeri* from Madagascar to the EU-28 and the rest of the world over the period 2004-2013 comprised very small numbers of wild-sourced bodies and specimens exported for scientific purposes (Table 3). EU imports were only reported by Germany.

No indirect trade originating in Madagascar to the EU-28 or the rest of the world were reported over the period 2004-2013.

**Table 3: Direct exports of *Calumma boettgeri* from Madagascar to the EU-28 (EU) and to the rest of the world (RoW), 2004-2013.**

<table>
<thead>
<tr>
<th>Importer</th>
<th>Term</th>
<th>Source</th>
<th>Purpose</th>
<th>Reported by</th>
<th>2004</th>
<th>2005</th>
<th>2007</th>
<th>2008</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU bodies</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>EU</td>
<td>Exporter</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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</tr>
<tr>
<td>RoW specimens</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
<td>2</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 07/05/2015.
Conservation status

_Calumma boettgeri_ is a small chameleon (IUCN/SSC Trade Specialist Group, 1993), with males up to 55mm snout-to-vent-length (SVL) and females up to 51mm SVL (Glaw and Vences, 2007). Clutches of 4-5 eggs hatch after three months incubation (IUCN/SSC Trade Specialist Group 1993, Schenke and Heinecke, 2002 in AC24 Doc. 7.2).

The species is endemic to Madagascar, where it inhabits primary rainforest and secondary forest (Glaw and Vences, 2007), at elevations from 650 to 1250 m above sea level (Cruze et al., 2008; Raxworthy and Nussbaum, 1994). Glaw and Vences (2007) reported that _C. boettgeri_ was generally seen at heights of 1-2 m above the ground.

The species was reported to occur in northern Madagascar (Jenkins _et al._, 2011e), where it was reported from Ambatond’Radama, Andoany, Antsiranana, Ambolokopatrika, Andrakaraka, Antalaha and Marojejy (Glaw and Vences, 2007). The species was also reported to occur in the Parc National Montagne d’Ambre (Glaw and Vences, 2007; Jenkins _et al._, 2011e) and Réserve Spéciale Manongarivo (Jenkins _et al._, 2011e), where collection is illegal (Jenkins _et al._, 2010); and from the Réserve Spéciale Lokobe on Nosy Be (Glaw and Vences, 2007). Its extent of occurrence was estimated at 25,996 km² (Jenkins _et al._, 2011e).

_C. boettgeri_ was reported to be common in secondary forests of Nosy Be, but considered less abundant in the primary rainforest of Lokobe (Glaw and Vences, 2007). At Montagne d’Ambre, it was reported common in the rainforest but rare in secondary vegetation (Glaw and Vences, 2007), with an estimated population size of 104 ± 33.9 individuals (Raxworthy and Nussbaum, 2002).

_C. boettgeri_ was categorised as Least Concern in the IUCN Red List based on its extent of occurrence and tolerance, despite the decline and severe fragmentation of its habitat, and to some degree, habitat modification (Jenkins _et al._, 2011e). The population trend was reported to be unknown and it was uncertain whether or not the population was severely fragmented (Jenkins _et al._, 2011e).

Reductions in available habitat through deforestation were reported to be a threat (Jenkins _et al._, 2011e, 2010).
SAURIA: CHAMAELEONIDAE

Calumma brevicorne II/B

SYNONYMS: Chamaeleo brevicornis, Chamaeleon brevicornis, Chamaeleon gularis
COMMON NAMES: Short-horned Chameleon (EN), Caméléon à cornes courtes (FR)
RANGE STATES: Madagascar
UNDER REVIEW: Madagascar
EU DECISIONS: Current no opinion i) for wild specimens from Madagascar formed on 07/02/2013. Previous Article 4.6(b) import restriction for wild specimens first applied on 19/09/1999 and last confirmed on 10/09/2012.
IUCN: Least Concern

Taxonomic Note
The taxonomy of this species group was revised by Raxworthy and Nussbaum (2006); six additional species previously included within Calumma brevicorne were described, and the proposed subspecies Calumma brevicorne tsarafidy was considered invalid. C. b. tsarafidy was considered to represent the nominate form (Raxworthy and Nussbaum, 2006).

Trade patterns
The genus Calumma was listed in CITES Appendix II on 04/02/1977 (originally included in Chamaeleo spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for Calumma brevicorne, whereas in 2014 a quota for 500 (term not specified) and in 2015 a quota for 500 live specimens was published.

Direct exports of C. boettgeri from Madagascar to the EU-28 and the rest of the world over the period 2004-2013 comprised wild-sourced bodies and specimens exported for scientific purposes (Table 4). EU imports were only reported by Germany.

No indirect trade originating in Madagascar to the EU-28 or the rest of the world was reported over the period 2004-2013.

Table 4: Direct exports of Calumma brevicorne from Madagascar to the EU-28 (EU) and the rest of the world (RoW), 2004-2013.

<table>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>specimens</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
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<td></td>
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<td></td>
<td>230</td>
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</tr>
<tr>
<td>RoW</td>
<td>bodies</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Conservation status**

_Calumma brevicorne_ is a medium- to large-sized chameleon (Brygoo, 1971 in Brady and Griffiths, 1999; IUCN/SSC Trade Specialist Group, 1993), with males reaching 132-170mm SVL and females 110-140mm SVL (Glaw and Vences, 2007). Clutches of 5-16 eggs reported from captivity, with animals reaching sexual maturity at eight months (Le Berre, 1995 in Brady and Griffiths, 1999).

The species is endemic to Madagascar (Jenkins et al., 2011n, 2010), where it inhabits mid-altitude humid forests at 810-1000 m above sea level (Glaw and Vences, 2007; Raxworthy and Nussbaum, 2006) and was most commonly found in disturbed edge habitats (Brady and Griffiths, 1999).

Raxworthy and Nussbaum (2006) reported that _C. brevicorne_ had a broad latitudinal distribution in eastern Madagascar, between Anosy Mountain in the south and Tsaratanana Massif in the north. It was also reported from the Analavory Plateau in the northwest, the Andasibe [Perinet] region (Jenkins et al., 2011n), Irony and from Sorata Mountain (Glaw and Vences, 2007). Its occurrence in Tsarafidy Forest [south-central region of the High Plateau] was considered unlikely (Raxworthy and Nussbaum, 2006). Glaw and Vences (2007) noted that other records of _C. brevicorne_ could not be reliably assigned at that time, as they may have referred to other recently distinguished species. The species was also reported to occur in Parc National d’Andohahela and Réserve Spéciale d’Analamazoatra (Glaw and Vences, 2007). However, Jenkins et al. (2010) noted that information on the geographic range of the species was incomplete. Its extent of occurrence was estimated at a minimum of 38,000 km² (Jenkins et al., 2011n).

In the 1990s, the total population was estimated at 1.2 million to 101.8 million individuals (Brady and Griffiths, 1999). However, due to the taxonomic revision by Raxworthy and Nussbaum (2006), previous population estimates were considered no longer valid (Randrianantoandro et al., 2011).

_C. brevicorne_ was categorised as Least Concern in the IUCN Red List, based on its wide distribution in eastern forests and occurrence in degraded habitats (Jenkins et al., 2011n). The declining population was not deemed of sufficient concern to warrant listing in a threatened category (Jenkins et al., 2011n). The status of the population was considered to be unknown (Randrianantoandro et al., 2011).

The main threat to the species were reported to be forest loss (Jenkins et al., 2011n), although it was reported to be tolerant to certain levels of habitat modification (Jenkins et al., 2010).

Jenkins et al. (2010) noted that a small annual harvest was unlikely to threaten _C. brevicorne_ because of its wide range and tolerance of some habitat disturbance. He, however, cautioned that due to the fragmented nature of its distribution "it should not be assumed that the species has a continuous occurrence between isolated localities" (Jenkins et al., 2010).

Jenkins et al. (2011n) noted that further research should be carried out to clarify the taxonomy and true distribution of _C. brevicorne_.

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<table>
<thead>
<tr>
<th>Importer Term (unit)</th>
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<th>Purpose</th>
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<tr>
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<tr>
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Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 07/05/2015.
**SAURIA: CHAMAELEONIDAE**

*Calumma gastrotaenia II/B*

**SYNONYMS:** *Chamaeleo gastrotaenia, Chamaeleon gastrotaenia, Chamaeleon grandidieri*

**COMMON NAMES:** Perinet Chameleon (EN), Caméléon de Périnet (FR)

**RANGE STATES:** Madagascar

**UNDER REVIEW:** Madagascar

**EU DECISIONS:** Current no opinion i) for wild specimens from Madagascar formed on 07/02/2013. Previous Article 4.6(b) import restriction for wild specimens first applied on 19/09/1999 and last confirmed on 10/09/2012.

**IUCN:** Least Concern

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**Taxonomic Note**

The taxonomy of this species was noted to be in the process of being revised (Jenkins et al., 2011f).

**Trade patterns**

The genus *Calumma* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo* spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for *Calumma gastrotaenia*, whereas in 2014 a quota for 500 (term not specified) and in 2015 a quota for 500 live specimens was published.

Direct exports of *C. gastrotaenia* from Madagascar to the EU-28 and the rest of the world over the period 2004-2013 comprised small numbers of wild-sourced bodies and specimens exported for scientific purposes (Table 5). EU imports were only reported by Germany.

No indirect trade originating in Madagascar to the EU-28 or the rest of the world was reported over the period 2004-2013.

**Table 5:** Direct exports of *Calumma gastrotaenia* from Madagascar to the EU-28 (EU) and the rest of the world (RoW), 2004-2013. All trade was wild-sourced for scientific purposes.

<table>
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<th>2012</th>
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<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exporter</td>
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<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>RoW</td>
<td>bodies</td>
<td>Importer</td>
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</tr>
<tr>
<td></td>
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<td>10</td>
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<tr>
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<td>2007</td>
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<td>2009</td>
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<td>2011</td>
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</tr>
<tr>
<td></td>
<td>Exporter</td>
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<td></td>
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</tr>
</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 07/05/2015.

Conservation status

*Calumma gastrotaenia* is a small- to medium-sized chameleon (IUCN/SSC Trade Specialist Group, 1993) of up to 68 mm SVL (Glaw and Vences, 2007), and was reported to roost at a height of 1-2 m (Glaw and Vences, 2007).

*C. gastrotaenia* is endemic to Madagascar (Glaw and Vences, 2007), where it inhabits intact but also highly disturbed humid forest (Brady and Griffiths, 1999) in the east and southeast of the country (Glaw and Vences, 2007), at low- to mid-altitudes (Andreone et al., 2001). Jenkins et al. (2011f) reported *C. gastrotaenia* to range from “Andringitra in the south to Maevetanana in the north”. The species’ occurrence was reported from Ambahaka forest, Ambavaniasy, Ambohimitonbo, Ampamaherina, Ampantomaiiza, An’Ala, Andasibe, Andrangoloaka, Angavokely, Antoetra, Antrababe, Befotaka, Farhilimazava, Ikongo, Maevatanana, Mandriandry forest, Moramanga, Tritriva (Glaw and Vences, 2007), and Andranomay Forest (near Anjozorobe) (Jenkins et al., 2003). The species was also reported to occur in a number of protected areas, including Réservation Spéciale d'Ambohitantely, Réservation Spéciale d’Analamazoatra and Parc National de Mantadia, where collection is prohibited (Glaw and Vences, 2007; Jenkins et al., 2010), Parc National Ranomafana, and in the private reserve Parc Mitsinjo near Andasibe (Jenkins et al., 2011f). However, it was thought that some *C. gastrotaenia* records may possibly “belong to other taxa that have yet to be described” (Andreone et al., 2001). Its extent of occurrence was estimated at 87,861 km² (Jenkins et al., 2011f).

*C. gastrotaenia* was reported to be abundant in primary and secondary forest (Glaw and Vences, 2007), in particular alongside small rivers within humid forest (Jenkins et al., 2003). The species was reported to be “tolerant of a high degree of habitat degradation” but apparently “unable to withstand deforestation” (Jenkins et al., 2011f); the species was reported to occur in higher densities in low-disturbance than high disturbance forest in Andranomay (Jenkins et al., 2003). Various densities of *C. gastrotaenia* were recorded, ranging from 23.7 individuals/ha at Andranomay (Jenkins et al., 2003) and 10.5 individuals/ha at Mantadia (Brady and Griffiths, 1999).

*C. gastrotaenia* was categorised as Least Concern on the IUCN Red List, based on its wide distribution in eastern Madagascar (Jenkins et al., 2011f). Jenkins et al. (2011f) noted that the species will require reassessment once the taxonomy of this species complex is resolved and may warrant a threatened category listing. The species population trend was reported to be unknown, but believed likely to be declining (Jenkins et al., 2011f).

Jenkins et al. (2010) noted that *C. gastrotaenia* could probably withstand a modest harvest because of its relatively wide geographic range, its local abundance and its tolerance of some habitat disturbance, but noted that “caution is needed however because of the difficulty in distinguishing other members of this species group (Glaw and Vences, 2007).”

The main threat to the species was reported to be the loss of humid forest (Jenkins et al., 2010, 2011f), particularly as this species appears to always be associated with this habitat type (Jenkins et al., 2011f).
**SAURIA: CHAMAЕLEONIDAE**

*Calumma guillaumeti II/B*

**SYNONYMS:** *Calumma gastrotaenia guillaumeti*

**RANGE STATES:** Madagascar

**UNDER REVIEW:** Madagascar

**EU DECISIONS:** Current no opinion i) for wild specimens from Madagascar formed on 02/12/2011. Previous Article 4.6(b) import restriction for wild specimens first applied on 21/05/2009 and last confirmed on 07/09/2011.

**IUCN:** Least Concern

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**Taxonomic Note**

*Calumma guillaumeti* was previously considered a subspecies of *Calumma gastrotaenia* before it was elevated to full species status (Andreone *et al.*, 2001). It was noted that records of *Calumma cf. guillaumeti* from Tsaratanana by Raxworthy *et al.* (2008) need clarification (Jenkins *et al.*, 2011g).

**Trade patterns**

The genus *Calumma* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo* spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for *Calumma guillaumeti*, whereas in 2014 a quota for 500 (term not specified) and in 2015 a quota for 500 live specimens was published.

Direct exports of *C. guillaumeti* from Madagascar to the EU-28 over the period 2004-2013 comprised one body exported for scientific purposes to Germany in 2005, as reported by both Madagascar and Germany, and three bodies exported in 2013, as reported by Germany only; all trade was wild-sourced for scientific purposes. No indirect trade originating in Madagascar to the EU-28 was reported over the period 2004-2013.

No direct or indirect exports from Madagascar to the rest of the world were reported over the period 2004-2013.

**Conservation status**

*Calumma guillaumeti* is a small chameleon, with males up to 52 mm SVL and females up to 58 mm SVL (Glaw and Vences, 2007).

The species is endemic to Madagascar, where it is restricted to high altitude humid forests of the northeast (Raxworthy *et al.*, 1998 in Jenkins *et al.*, 2011g). It was reported to occur at elevations from 1250 m (Raselimanana *et al.*, 2000 in Andreone *et al.*, 2001) to 1700 m (Raxworthy *et al.*, 2008).
*C. guillaumeti* was reported to occur in three protected areas: Anjanaharibe-Sud Special Reserve, Marojejy National Park, and Réserves Naturelles Intégrales de Tsaratana (Andreone *et al.*, 2001; Glaw and Vences, 2007; Jenkins *et al.*, 2010). The species was also reported from Tsarantanana (Raxworthy *et al.*, 2008), although Jenkins *et al.* (2011g) noted that these records needed clarification. Its extent of occurrence was estimated at 6,449 km² (Jenkins *et al.*, 2011g).

*C. guillaumeti* was not considered to be rare, although likely to be declining at low elevations (Jenkins *et al.*, 2011g).

*C. guillaumeti* was categorised as Least Concern in the IUCN Red List, as despite its restricted area of occurrence, habitat decline was only reported to occur at the lower elevational limit of its range (Jenkins *et al.*, 2011g). The population was thought unlikely to be severely fragmented but was believed to be declining (Jenkins *et al.*, 2011g).

The habitat of *C. guillaumeti* was reported to be at risk from slash-and-burn agriculture and logging, but only at lower altitudes; upslope encroachment of these activities, however, was thought to potentially present a future risk, which may warrant a threatened or Near Threatened category listing (Jenkins *et al.*, 2011g). Raxworthy *et al.* (2008) also noted the threat to *C. guillaumeti* and other high altitude species from upslope displacement due to climate change.
SAURIA: CHAMAELEONIDAE

*Calumma malthe* II/B

**SYNONYMS:** *Chamaeleo malthe, Chamaeleon malthe*

**COMMON NAMES:** Yellow-green Chameleon (EN), Caméléon vert-et-jaune (FR)

**RANGE STATES:** Madagascar

**UNDER REVIEW:** Madagascar

**EU DECISIONS:** Current no opinion i) for wild specimens from Madagascar formed on 02/12/2011. Previous Article 4.6(b) import restriction for wild specimens first applied on 19/09/1999 and last confirmed on 07/09/2011.

**IUCN:** Least Concern

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**Trade patterns**

The genus *Calumma* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo* spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for *Calumma malthe*, whereas in 2014 a quota for 500 (term not specified) and in 2015 a quota for 500 live specimens was published.

Direct exports of *C. malthe* from Madagascar to the EU-28 and the rest of the world over the period 2004-2013 comprised small numbers of wild-sourced bodies and specimens exported for scientific purposes (Table 6). EU imports were only reported by Germany.

No indirect trade originating in Madagascar to the EU-28 or the rest of the world was reported over the period 2004-2013.

**Table 6:** Direct exports of *Calumma malthe* from Madagascar to the EU-28 (EU) and the rest of the world (RoW), 2004-2013.

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<thead>
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<th>Purpose</th>
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<td>Exporter</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 07/05/2015.

**Conservation status**

*Calumma malthe* is a medium-sized chameleon (IUCN/SSC Trade Specialist Group, 1993), with males up to 135 mm SVL and females up to 120 mm SVL (Glaw and Vences, 2007).
The species is endemic to Madagascar (Jenkins et al., 2011h), where it occurs both in relatively intact and disturbed (Jenkins et al., 2010), mid-altitude humid forests (Glaw and Vences, 2007; Jenkins et al., 2011h, 2010), at elevations from 1200 to 1650 m above sea level (Raselimanana and Rakotomalala, 2003 in Jenkins et al., 2011h; Raxworthy et al., 2008).

*C. malthe* was reported to occur from the northwest to the northeast, and across eastern Madagascar south to Marolambo in the central east (Jenkins et al., 2011h). The species' occurrence was reported in Andasibe, Anjanaharibe-Sud, Fito, Analamazoatra, Iaraka, Moramanga, and Isaka-Ivondro and Marojejy (Glaw and Vences, 2007), Tsaratanana (Raxworthy et al., 1998; Jenkins et al., 2010), and an isolated population was reported in Ambohijanahary (Jenkins et al., 2011h). The species was also reported to occur in a number of strict protected areas including Réserves Naturelles Intégrales de Tsaratanana, and Mantadia National Park (Jenkins et al., 2010). Its extent of occurrence was estimated at 48,245 km² (Jenkins et al., 2011h).

*C. malthe* was reported to be widespread and moderately common (Jenkins et al., 2011h) and it was reported to occur at densities up to 13.5 individuals/ha in undisturbed habitats in Mantadia National Park (Brady and Griffiths, 1999).

*C. malthe* was categorised as Least Concern in the IUCN Red List, based on its extent of occurrence, and its presence in protected areas, and that it appears to be relatively abundant with no evidence of a population decline fast enough to warrant a more threatened category listing (Jenkins et al., 2011h). The species, however, was believed to likely be declining outside protected areas (Jenkins et al., 2011h).

Main threats to the species were reported to include the loss and degradation of humid forest (Jenkins et al., 2011h). Raxworthy et al. (2008) also noted that upslope displacement due to climate change was a threat to *C. malthe* and other high altitude species. Illegal collection for the pet trade was also thought to possibly also pose a threat (Jenkins et al., 2011h).

Jenkins et al. (2011h) noted that further research should be carried out into the species' area of occupancy, population trends and susceptibility to threats.
SAURIA: CHAMAELEONIDAE

Calumma marojezense II/B

SYNONYMS: Calumma gastrotaenia marojezensi

RANGE STATES: Madagascar

UNDER REVIEW: Madagascar

EU DECISIONS: Current no opinion i) for wild specimens from Madagascar formed on 02/12/2011. Previous Article 4.6(b) import restriction for wild specimens first applied on 21/05/2009 and last confirmed on 07/09/2011.

IUCN: Near Threatened

Taxonomic Note
Calumma marojezense was previously regarded as a subspecies of C. gastrotaenia (Andreone et al., 2001). It was noted that the taxonomy of this species was in need of revision (Jenkins et al., 2011i).

Trade patterns
The genus Calumma was listed in CITES Appendix II on 04/02/1977 (originally included in Chamaeleo spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for Calumma marojezense, whereas in 2014 a quota for 300 (term not specified) and in 2015 a quota for 300 live specimens was published.

No direct or indirect exports of C. marojezense from Madagascar to the EU-28 or the rest of the world were reported over the period 2004-2013.

Conservation status
Calumma marojezense occurs in low-altitude rainforest (Glaw and Vences, 2007), at elevations between 475 to 625 m above sea level (Jenkins et al., 2010). It was reported to roost at 0.5-1.5 m above the ground (Glaw and Vences, 2007).

The species is endemic to northeast Madagascar (Jenkins et al., 2010), where it was found to be restricted to relatively intact lowland forests (Raselimanana, 1998 in Jenkins et al., 2010). It was reported from the massifs Masoala (Andreone et al., 2001), Anandrivola (Andreone et al., 2001), Marojejy (Raselimanana et al., 2000 in Jenkins et al., 2010), and Anjanaharibe-Sud (Andreone et al., 2000; Raxworthy et al., 1998), although Andreone et al. (2001) considered reports from Anjanaharibe-Sud to need confirmation. This species was also reported to occur in protected areas, including Réserve Naturelle Intégrale de Tsaratana and Parc National de Mantadia (Jenkins et al., 2010). Jenkins et al. (2011i) noted that the species was likely “to occur more widely in suitable habitat”. Its extent of occurrence was estimated at 9500 km² (Jenkins et al., 2011i).

The species was reported to be locally abundant (Jenkins et al., 2011i).
C. marojezense was categorised as Near Threatened, based on its extent of occurrence and threats to its forest habitat (Jenkins et al., 2011i). The population was reported to be declining, but was not thought to be severely fragmented (Jenkins et al., 2011i).

The main threat to the species was reported to be the loss of its low elevation humid forest habitat (Jenkins et al., 2011i).

Jenkins et al. (2011i) noted that further research should be carried out into the species' distribution, response to threats, and population trends.
SAURIA: CHAMAELONIDAE

Calumma nasutum II/B

| SYNONYMS: | Calumma nasuta, Camaleon nasutus, Chamaeleo nasutus, Chamaeleo radamanus |
| COMMON NAMES: | Big-nosed Chameleon (EN), Caméléon nasique (FR) |
| RANGE STATES: | Madagascar |
| UNDER REVIEW: | Madagascar |
| EU DECISIONS: | Current no opinion i) for wild specimens from Madagascar formed on 07/02/2013. Previous Article 4.6(b) import restriction for wild specimens first applied on 19/09/1999 and last confirmed on 10/09/2012. |
| IUCN: | Least Concern |

Taxonomic Note
It was noted that the *Calumma nasutum* species complex was in need of a fundamental taxonomic revision (Gehring *et al.*, 2012; Jenkins *et al.*, 2011j). According to Glaw and Vences (2007), evidence suggested that *C. nasutum* was actually a complex of several species.

Trade patterns
The genus *Calumma* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo* spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for *Calumma nasutum*, whereas in 2014 a quota for 1000 (term not specified) and in 2015 a quota for 1000 live specimens was published.

Direct exports of *C. nasutum* from Madagascar to the EU-28 and the rest of the world over the period 2004-2013 comprised mainly of small numbers of wild-sourced bodies exported for scientific purposes (Table 7). EU imports were only reported by Portugal (three specimens in 2011) and Germany (remaining trade).

No indirect trade originating in Madagascar to the EU-28 or the rest of the world was reported over the period 2004-2013.
Table 7: Direct exports of *Calumma nasutum* from Madagascar to the EU-28 (EU) and the rest of the world (RoW), 2004-2013. All trade was wild-sourced for scientific purposes.

<table>
<thead>
<tr>
<th>Importer</th>
<th>Term (unit)</th>
<th>Reported by</th>
<th>2004</th>
<th>2005</th>
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<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<th>2013</th>
</tr>
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<td>18</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exporter</td>
<td>2</td>
<td>6</td>
<td>3</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
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<td>Importer</td>
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<tr>
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<tr>
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<td>11</td>
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<tr>
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<td></td>
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</tr>
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<td></td>
<td>specimens (kg)</td>
<td>Importer</td>
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<td></td>
<td>specimens (l)</td>
<td>Importer</td>
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</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 07/05/2015.

Conservation status

*Calumma nasutum* is the smallest *Calumma* species (IUCN/SSC Trade Specialist Group, 1993), with males up to 48 mm SVL (Glaw and Vences, 2007). Clutch sizes of 2-4 eggs were reported from captivity (Pollak, 2002 in AC24 Doc. 7.2).

The species is endemic to Madagascar (Jenkins *et al.*, 2011j), at elevations from 320 to 1350 m above sea level (Jenkins *et al.*, 2011j). It is associated with humid forest but also recorded in a wide range of vegetation types (Jenkins *et al.*, 2010). It was noted that *C. nasutum* requires the presence of some native vegetation (Jenkins *et al.*, 2010). During a survey on the central high plateau, Andreone *et al.* (2007) also noted that *C. nasutum* was never found in open areas without forest cover.

*C. nasutum* was reported widespread in the humid eastern part of Madagascar (Glaw and Vences, 2007). The species’ occurrence was reported from Abolokopatrika, Ambahaka forest, Ambatolampy, Ambavaniasy, Ambila-Lemaitso, Ambohimitombo, Ambohitralanana, Ampamaherina, Ampasimbe, An’Ala, Andapa, Andasibe, Andekaleka, Andrakaraka, Andrambovato, Anjozorobe, Antoetra, Chaines Anosyennes, Farihimazava, Ivohibe, Lokobe, Lokomby, Malahelo, Manambolo, Manantantely, Mandraka, Mandriandry forest, Maroantsetra, Nosiarina, Nosy Be, Nosy Boraha, Nosy Komba, Nosy Mangabe, Sainte Luce, Sambava, Tampolo, Toamasina, Tolagnaro, Vinanitelo, Vohimaparaha (Glaw and Vences, 2007) and Itremo-Ambatofinandrana (Randriantandringy *et al.*, 2009). The species was also reported to occur in most protected areas in the east of Madagascar (Jenkins *et al.*, 2011j), including Réserve Spéciale d’Anjanaharibe-Sud, Parc National d’Andohahela, Parc National d’Andringitra, Parc National de Marojejy, Parc National de Montagne d’Ambre, Parc National de Ranomafana and Parc National de Zahamena (Glaw and Vences, 2007). Its extent of occurrence was estimated at 201,439 km² (Jenkins *et al.*, 2011j).
Glaw and Vences (2007) reported that *C. nasutum* was widely distributed, and common in humid forest areas, usually found in low vegetation in primary forest but also at the forest edge and in secondary vegetation. In the late 1990s, the species was reported in relatively low abundance in Andohahela (Andreone and Randriamahazo, 1997 in Jenkins *et al.*, 2010). Brady and Griffiths (1999) reported densities between 6.2 and 33.4 individuals/ha, with higher adult densities reported in disturbed compared to undisturbed forest. They estimated the total population at 1.2 million to 178.9 million individuals (Brady and Griffiths, 1999). Another estimate reports a variable population density and a total population estimate of between 670 000 and 116 million adults (AC24 Doc. 7.2), although basis and date of this estimate is unclear.

*C. nasutum* was categorised as Least Concern in the IUCN Red List due to its widespread distribution in eastern Madagascar and its presence in numerous protected areas and in heavily disturbed and degraded forest (Jenkins *et al.*, 2011j). It was reported to have a decreasing population trend (Jenkins *et al.*, 2011j). Jenkins *et al.* (2011j) noted that if the species was found to be considerably less widespread following taxonomic revision, it should be reassessed.

Main threats to the species were reported to include the loss and degradation of humid forest (Jenkins *et al.*, 2011j).

Jenkins *et al.* (2010) noted that *C. nasutum* can probably withstand a modest harvest because of its relatively wide geographic range, its local abundance and its tolerance of some habitat disturbance, but noted that “caution is needed, however, because of the difficulty in distinguishing other members of this species group (Glaw and Vences, 2007).”
**Calumma oshaughnessyi II/B**

**SYNONYMS:** *Chamaeleo oshaughnessyi*

**COMMON NAMES:** O’Shaughnessy’s Chameleon (EN), Caméléon d’O’Shaughnessy (FR)

**RANGE STATES:** Madagascar

**UNDER REVIEW:** Madagascar

**EU DECISIONS:** Current no opinion i) for wild specimens from Madagascar formed on 02/12/2011. Previous Article 4.6(b) import restriction for wild specimens first applied on 19/09/1999 and last confirmed on 07/09/2011.

**IUCN:** Vulnerable

**Taxonomic Note**

A population from Montagne d’Ambre was previously considered to be a subspecies of *Calumma oshaughnessyi*, but has been given full species status as *Calumma ambreense* in the literature (Andreone *et al.*, 2009; Glaw and Vences, 2007).

**Trade patterns**

The genus *Calumma* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo* spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for *Calumma oshaughnessyi*, whereas in 2014 a quota for 250 (term not specified) and in 2015 a quota for 250 live specimens was published.

Direct exports of *C. oshaughnessyi* from Madagascar to the EU-28 and the rest of the world and specimens over the period 2004-2013 comprised very small numbers of wild-sourced bodies exported for scientific purposes (Table 8). EU imports were only reported by Germany.

No indirect trade originating in Madagascar to the EU-28 was reported over the period 2004-2013. The only indirect trade originating in Madagascar to the rest of the world over the period 2004-2013 comprised two live specimens imported by Japan in 2005, as reported by Thailand, the re-exporter.

**Table 8:** Direct exports of *Calumma oshaughnessyi* from Madagascar to the EU-28 (EU) and the rest of the world (RoW), 2004-2013.

<table>
<thead>
<tr>
<th>Importer</th>
<th>Term (unit)</th>
<th>Source</th>
<th>Purpose</th>
<th>Reported by</th>
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<th>2006</th>
<th>2007</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
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<td>S</td>
<td>Importer</td>
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<td>2</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Exporter</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RoW</td>
<td>bodies</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Exporter</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conservation status

*Calumma oshaughnessyi* is a medium- to large-sized chameleon (Brady and Griffiths, 1999), with males up to 165 mm SVL and females up to 180 mm SVL (Glaw and Vences, 2007).

The species is endemic to Madagascar, where it inhabits mid-altitude humid forest (Jenkins et al., 2010). *C. oshaughnessyi* was believed to be dependent on relatively intact habitat (Jenkins et al., 1999).

*C. oshaughnessyi* was reported to occur at numerous localities in the central highlands and southeast “between Tsinjoarivo (F. Glaw pers. comm. January 2011) and Antoetra in the north (Andreone et al., 2007) and Andohahela to the south (Glaw and Vences, 2007)” (Jenkins et al., 2011k). It was recorded at Andringitra (Raxworthy and Nussbaum, 1996a in Jenkins et al., 2011k), Kalambatritra (Andreone et al., 2007), Ambahaka forest, Ambohimombo, Andrambovato, Antoetra, Befotaka, Chaines Anosyennes, Farihimazava, Ikongo, Ivohibe, Manambolo, and Vinanitelo (Glaw and Vences, 2007). The species was also reported to occur in a number of strictly protected areas, including Parc National de Ranomafana (Jenkins et al., 2011k, 2010). Its extent of occurrence was estimated at 18,000km² (Jenkins et al., 2011k).

Brady and Griffiths (1999) estimated the national population size of *C. oshaughnessyi* to be between 6.3 million and 52.6 million individuals, although Jenkins et al. (2011k) noted that this included the population at Montagne d’Ambre, which is now considered a distinct species (*C. ambreense*). Population densities were recorded to be lower in disturbed forest at Talatakely [in Parc National de Ranomafana] (Brady and Griffiths, 1999), although it was later considered ‘common at Parc National de Ranomafana (Jenkins et al., 2011k, 2010).

*C. oshaughnessyi* was categorised as Vulnerable in the IUCN Red List, based on a continuing decline in its habitat and its occurrence as a severely fragmented population (Jenkins et al., 2011k). The species was reported to have a decreasing population trend (Jenkins et al., 2011k).

Main threats to the species were reported to include loss of humid forest (Jenkins et al., 2011k). Illegal collection for the pet trade was also thought to potentially pose a threat (Jenkins et al., 2011k).

Jenkins et al. (2011k) noted that further research should be carried out into the species’ distribution and population trends and on the species’ ecological requirements and life history outside Ranomafana National Park.
SAURIA: CHAMAELEONIDAE

Calumma parsonii II/B

**SYNONYMS:** Chamaeleo madecasseus, Chamaeleo parsonii

**COMMON NAMES:** Parson’s Giant Chameleon (EN), Caméléon de Parson (FR), Camaleón de Parson [ES]

**RANGE STATES:** Madagascar

**UNDER REVIEW:** Madagascar

**EU DECISIONS:** Current no opinion ii) for wild specimens from Madagascar formed on 03/09/2014. Previous no opinion i) for wild specimens formed on 07/02/2013. Previous Article 4.6(b) import restriction for wild specimens first applied on 19/09/1999 and last confirmed on 10/09/2012.

**IUCN:** Near Threatened

**Taxonomic Note**

There are two recognised subspecies, *Calumma parsonii parsonii* and *C. p. cristifer* (Klaver and Böhme, 1997), the latter occurring around Analamazaotra and Mantadia (Jenkins et al., 2011). At least three distinct colour morphs are known (Brady and Griffiths, 1999; Glaw and Vences, 2007).

**Trade patterns**

The genus *Calumma* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo* spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for *Calumma parsonii*, whereas in 2014 a quota for 300 (term not specified) and in 2015 a quota for 300 live specimens was published.

Direct exports of *C. parsonii* from Madagascar to the EU-28 and the rest of the world over the period 2004-2013 comprised very small numbers of wild-sourced bodies and specimens exported for scientific purposes (Table 9). EU imports were only reported by Germany.

No indirect trade originating in Madagascar to the EU-28 was reported over the period 2004-2013. The only indirect trade originating in Madagascar to the rest of the world consisted of one skull imported by Australia in 2012, as reported by the United States, and 17 live wild-sourced/seized specimens imported for re-introduction purposes by Madagascar in 2007 (reported as source I by the exporter Croatia and reported as wild-sourced by the importer Madagascar).
Table 9: Direct exports of *Calumma parsonii* from Madagascar to the EU-28 (EU) and the rest of the world (RoW), 2004-2013.

<table>
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</tr>
</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 07/05/2015.

Conservation status

*Calumma parsonii* is one of the world’s largest chameleons (Tolley and Burger, 2007), with males up to 295 mm SVL and females up to 200 mm SVL (Glaw and Vences, 2007). It is considered to be particularly long-lived, and expected to reach an age of 10-15 years in captivity with correct management (Brady and Griffiths, 1999). Clutches of 30-60 eggs reported from captivity, with sexual maturity reached at 1.5 years of age, possibly later (Brady and Griffiths, 1999).

The species is endemic to Madagascar, where it inhabits mid- and low-altitude rainforest and forest edges, across northern and eastern Madagascar (Glaw and Vences, 2007). It was reported to occur at elevations from 45 to 195 m above sea level (Jenkins *et al.*, 2011). Jenkins *et al.* (2011) reported *C. parsonii* to range from “Ranomafana in the south to Anjanaharibe Sud in the north (Rakotomalala and Raselimanana, 2003) and the Masoala Peninsula (F. Andreone pers. comm. January 2011)”. It has also been recorded from Manongarivo in the northwest (Raxworthy *et al.*, 2003) and its occurrence was reported from Ambolokopatrika, Ambanja, Ambavaniasy, Ambodifotatra, Andasibe, Antsihanaka, Fanovana, Fenoarivo, Ifanadiana, Ikongo, Kianjavato, Mananjary, Nosy Boraha, near Ifanadiana, Sahatavy Ouest, Sahembendrana, Tsaramandroso, and Vavatenina (Glaw and Vences, 2007). The species was reported to occur in a number of strictly protected areas, where collection is illegal (Jenkins *et al.*, 2011), with *C. parsonii cristifer* occurring in Parc National de Mantadia and Reserve Spéciale d’Analamazaotra (Rakotondravony, 2004; Raselimanana and Rakotomalala, 2003 in Rabearivony *et al.*, 2007). Its extent of occurrence was estimated at 39,800 km² (Jenkins *et al.*, 2011).

*C. parsonii* was reported to be widespread across northern and eastern Madagascar (Glaw and Vences, 2007). In the Ranomafana region, eastern Madagascar, *C. parsonii* was reported to be “very rare in dense primary rainforest, but [...] regularly found in disturbed rainforest and rainforest edges at lower elevations” (Glaw and Vences, 2007). *C. parsonii parsonii* was described as rare in relatively intact forest within Ambodiriana forest, eastern Madagascar (Rabearivony *et al.*, 2007). Few *C. parsonii parsonii* were reported to have been found during qualitative surveys of nine locations within its recorded range conducted in 1996-1997, with most observations coming from small fragments of forest in Ifanadiana and Nosy Boraha (Abate, 1998 in Brady and Griffiths, 1999). *C. parsonii cristifer* was reported to occur at densities of between 1.3 and 3.9 individuals/ha in relatively intact forest of the Mantadia region, eastern Madagascar, with lower densities in more disturbed regions (0.4-1.1 individuals/ha), based on surveys conducted in 1998-1999 (Brady and Griffiths, 1999). These population densities were found to be notably lower than for some other *Calumma* species within the region (Brady and Griffiths, 1999). In the 1990s, the total population was estimated at 3.8 million to 37.5 million individuals (Brady and Griffiths, 1999).

*C. parsonii* was categorised as Near Threatened in the IUCN Red List, based on a past population decline of greater than 15-20% over the past 15-18 years (Jenkins *et al.*, 2011). The species was
reported to have a decreasing population trend (Jenkins et al., 2011). More detailed population data may reveal that the species should be listed in a more threatened category (Jenkins et al., 2011).

Main threats to the species were reported to include the loss of humid forest (Jenkins et al., 2011). The habitat of *C. parsonii* was reported to be extremely fragmented, and the species was considered unlikely to persist in small forest fragments, given its large size and occurrence at low densities (Jenkins et al., 2011).

The demand for *C. parsonii* was noted to be high (Mattioli et al., 2006) and collection for the international pet trade was noted as a potential threat, if not managed properly, due to the species’ slow growth and occurrence at low densities (Brady and Griffiths, 1999). Large-scale collection of wild individuals prior to the 1995 trade suspension was noted to likely have been a contributor to localised declines (Jenkins et al., 2011). The species was reported to have been collected in large numbers in the 1990s, (Ravoninjatovo and Rabemananjara, 1999; Brady and Griffiths, 1999; IUCN/SSC Trade Specialist Group, 1993). Illegal collection for the pet trade may also pose a threat; a TRAFFIC survey of the trade in Malagasy reptiles and amphibians in Thailand conducted in January 2010 found *C. parsonii* to be “widely traded” (Todd, 2011). Specimens were estimated to fetch retail prices of 621 USD in northern Europe and 485 USD in Thailand (Todd, 2011).

No formally established captive-breeding programmes were reported to exist for this species (Jenkins et al., 2011).

Dr Richard Jenkins and Dr Frank Glaw (R. Jenkins pers. comm. to UNEP-WCMC, 31 July 2014) expressed some concern regarding the size of the 2014 export quota for *C. parsonii*, given that the species is long-lived and occurs at low densities, making it at greater risk from over-collection than species with shorter life cycles. Dr R. Jenkins (R. Jenkins pers. comm. to UNEP-WCMC, 31 July 2014) also noted that the Red List considered *C. parsonii* to be close to qualifying for categorisation as Vulnerable, and suggested that a lower quota may be more prudent. He suggested that it would be useful to have information on proposed collection sites (given that *C. parsonii* occurs in many protected areas) and on whether adults or juveniles would be targeted for collection, as well as whether mortality and potential illegal trade had been considered during quota-setting (R. Jenkins pers. comm. to UNEP-WCMC, 31 July 2014).
**Trade patterns**

The genus *Furcifer* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo* spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

In 2012 and 2013, Madagascar published zero CITES export quotas for *Furcifer antimena*, whereas in 2014 a quota for 150 (term not specified) and in 2015 a quota for 150 live specimens was published.

No direct or indirect exports of *F. antimena* from Madagascar to the EU-28 were reported over the period 2004-2013.

Direct exports of *F. antimena* from Madagascar to the rest of the world over the period 2004-2013 comprised very small numbers of wild-sourced bodies and specimens exported for scientific purposes (Table 10). No indirect exports originating in Madagascar to the rest of the world were reported over the period 2004-2013.

**Table 10: Direct exports of Furcifer antimena from Madagascar to the rest of the world (RoW), 2004-2013.**

<table>
<thead>
<tr>
<th>Importer</th>
<th>Term (unit)</th>
<th>Source</th>
<th>Purpose</th>
<th>Reported by</th>
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<th>2008</th>
<th>2010</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
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<td>W</td>
<td>S</td>
<td>Importer</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exporter</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>specimens</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
<td>14</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>specimens (kg)</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exporter</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>specimens (l)</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
<td>0.001</td>
<td></td>
<td></td>
<td>0.002</td>
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<td>0.004</td>
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</tr>
</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 07/05/2015.
Conservation status

*Furcifer antimena* is a medium- to large-sized chameleon (Brady and Griffiths, 1999), with males reaching up to 170 mm SVL and females up to 95 mm SVL (Glaw and Vences, 2007). Two to three clutches of 8-23 eggs reported from captivity, with sexual maturity reached at six months of age (Le Berre, 1995 in AC24 Doc. 7.2).

*F. antimena* inhabits the spiny forest of southwest Madagascar (Glaw and Vences, 2007), in both relatively intact and degraded areas (Raselimanana and Rakotomalala, 2003 in Jenkins et al., 2011a), at elevations from 5 to 80 m above sea level (Raselimanana, 2004; Raselimanana and Rakotomalala, 2003 in Jenkins et al., 2010).

Antsokay and the airstrip at Toliara were reported to be the most easterly known locations of *F. antimena* (Brygoo, 1971 in Jenkins et al., 2011a), and near Morombe, the most northern (Raselimanana, 2004 in Jenkins et al., 2011a). Glaw and Vences (2007) reported the species' occurrence in Belanda, Ifaty, Ihotry, and Tsivanoa. It was noted that the rivers Onilahy and Mangoky appeared “to form natural boundaries to the species' distribution, and so it is not thought to be more widespread than is currently known” (Brygoo, 1971 in Jenkins et al., 2011a). The species was also reported to occur in the PK32-Ranobe Protected Area and Parc National Mikea. It was also reported in a private reserve Arboretum d’Antsokay (Jenkins et al., 2011a). Jenkins et al. (2010) noted there was little effective conservation within the species’ range. Its extent of occurrence was estimated at 6310 km² (Jenkins et al., 2011a).

*F. antimena* was reported to occur at densities of 17.0-18.7 individuals/ha near Toliara (Karsten et al., 2009; Andriamandimbiarisoa, 2007 in Jenkins et al., 2010).

*F. antimena* was categorised as Vulnerable in the IUCN Red List due to the high rates of forest loss in south-eastern Madagascar. The population was reported to be severely fragmented and declining (Jenkins et al., 2011a). Following study of the six chameleon species that inhabit the arid southwest of Madagascar, Karsten et al. (2009) recommended that two of them, *F. antimena* and *F. labordi*, should be considered as a conservation priority due to their “restricted distribution, susceptibility to extirpation, lower population densities and lack of formal habitat protection”.

Main threats to the species were reported to include the conversion of native forest vegetation into charcoal and forest clearance for agriculture (Jenkins et al., 2011a).

Jenkins et al. (2010) believed that the species may not be threatened by a small annual harvest, but noted “that there are major gaps in knowledge surrounding its biology.” Jenkins et al. (2010) also reported that the traditional collection site for the species, Itremo, was being designated as new protected area [not yet designated as of 28/05/2015].

Jenkins et al. (2011a) noted that more information was needed on the species’ ecological requirements and susceptibility to threats, and that monitoring of population trends was needed to evaluate reported declines.
Trade patterns

The genus *Furcifer* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo* spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013. Between 2011 and 2013, Madagascar published zero CITES export quotas for *Furcifer bifidus*, whereas in 2014 a quota for 500 (term not specified) and in 2015 a quota for 500 live specimens was published.

Direct exports of *F. bifidus* from Madagascar to the EU-28 over the period 2004-2013 comprised three wild-sourced bodies exported for scientific purposes, as reported by Germany.

Direct exports of *F. bifidus* from Madagascar to the rest of the world over the period 2004-2013 comprised five bodies, as reported by the exporter, Madagascar, and one specimen, as reported by the importer; all were wild-sourced and traded for scientific purposes.

No indirect exports originating in Madagascar to the EU or to the rest of the world were reported over the period 2004-2013.

Conservation status

*Furcifer bifidus* is a large chameleon (Glaw and Vences, 2007), with males reaching up to 200 mm SVL and females up to 124 mm SVL (Glaw and Vences, 2007).

*F. bifidus* is endemic to Madagascar (Jenkins *et al.*, 2010), where it inhabits intact and degraded lowland humid forests (Jenkins *et al.*, 2011c), at elevations up to 700 m above sea level (Jenkins *et al.*, 2011c).

Jenkins *et al.* (2011c) reported *F. bifidus* to occur in the east of Madagascar north of the Mangoro River to Marojejy (Glaw and Vences, 2007) and the Loky-Manambato complex near Daraina (Rakotondravony, 2006), and east to Masoala (Jenkins *et al.*, 2011c). The species’ occurrence was reported from Ambavaniasy, Ambila-Lemaitso, Ampantomaizina, Ampasimanolotra, Ampasimbe, Andekaleka, Andrakaraka, Ankoetrika, Beforona, Betampona, Fandrarazana, Fenoarivo, Fito, Ivoloina, Mahambo, Moramanga, Tampina, Toamasina, and Vohidrazana (Glaw and Vences,
Earlier low-altitude records from the east coast were considered to need confirmation, as the area had become degraded (Jenkins et al., 2011c). The species was also reported to occur in a number of protected areas: Parc National de Zahamena, Réserve Spéciale d’Analamazaotra, Parc National de Marojejy and Réserve Spéciale d’Ambatovaky (Rakotomalala and Raselimanana, 2003 in Jenkins et al., 2011c). It was also noted as likely to occur in Parc National de Masoala (Jenkins et al., 2011c). The extent of its occurrence was estimated at 35,368 km² (Jenkins et al., 2011c).

Jenkins et al. (2010) believed that *F. bifidus* may be rare and noted the lack of information on the species’ population biology or status. Jenkins et al. (2011c) reported *F. bifidus* as infrequently or rarely encountered.

*F. bifidus* was provisionally categorised as Least Concern in the IUCN Red List, based on the best available estimate for the extent of its occurrence, but it was noted that *F. bifidus* was exposed to a number of threats, and the extent and quality of suitable habitat was declining (Jenkins et al., 2011c). The population was believed to be severely fragmented and declining (Jenkins et al., 2011c).

Main threats to the species were reported to include habitat loss (Jenkins et al., 2011c, 2010). Collection and illegal export may also pose a threat, and *F. bifidus* was noted to be “highly desirable in the international pet trade” (Jenkins et al., 2011c).

It was noted by Jenkins et al. (2011c) that there is very little data on this species, and that basic information on its population, ecology, distribution, habitat use and exposure to threats was needed.
Trade patterns

The genus *Furcifer* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo* spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2015, Madagascar published a CITES export quota of 250 live specimens for *Furcifer campani* every year (Table 11).

**Table 11: CITES export quotas for *Furcifer campani* from Madagascar and global direct exports of live wild-sourced specimens from Madagascar 2003-2014. Trade data for 2014-2015 are not yet available.**

<table>
<thead>
<tr>
<th></th>
<th>Reported by</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quota (live)</td>
<td>Importer</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>Exporter</td>
<td>113</td>
<td>217</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 07/05/2015.

Direct exports of *F. campani* from Madagascar to the EU-28 over the period 2004-2013 comprised very small numbers of wild-sourced bodies exported for scientific purposes and live specimens exported for commercial purposes (Table 11). EU imports were only reported by Germany.

Direct exports of *F. campani* from Madagascar to the rest of the world over the period 2004-2013 comprised relatively low numbers of wild-sourced live specimens exported for commercial purposes and very small numbers of wild-sourced bodies and specimens exported for scientific purposes (Table 12).

No indirect trade originating in Madagascar to the EU-28 or the rest of the world was reported over the period 2004-2013.
Table 12: Direct exports of *Furcifer campani* from Madagascar to the EU-28 (EU) and the rest of the world (RoW), 2004-2013.

<table>
<thead>
<tr>
<th>Importer</th>
<th>Term</th>
<th>Source</th>
<th>Purpose</th>
<th>Reported by</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2010</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU bodies</td>
<td>W S</td>
<td>Importer</td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exporter</td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>live</td>
<td>W T</td>
<td>Importer</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Exporter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>RoW bodies</td>
<td>W S</td>
<td>Importer</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exporter</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>live</td>
<td>W T</td>
<td>Importer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>45</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exporter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>113</td>
<td>215</td>
<td></td>
</tr>
<tr>
<td>specimens</td>
<td>W S</td>
<td>Importer</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 07/05/2015.

Conservation status

*Furcifer campani* is a small- to medium-sized chameleon (Brady and Griffiths, 1999), with males up to 66 mm SVL and females up to 68.5 mm SVL (Glaw and Vences, 2007). Two to three clutches of 8-12 eggs reported from captivity, with sexual maturity reached at three months of age (Le Berre, 1995 in AC24 Doc. 7.2).

*F. campani* is endemic to Madagascar (Jenkins et al., 2010), where it mainly inhabits montane savannah (Glaw and Vences, 2007), in particular secondary heathland (Raxworthy and Nussbaum, 1996b) and savannah grasslands (Vences et al., 2002 in Jenkins et al., 2010). It was found at elevations from 1793 to 2643 m above sea level (Randrianantoandro et al., 2009).

*F. campani* was reported to occur in the central highlands of Madagascar, “ranging from Andringitra in the south to Ankaratra in the north (Brygoo, 1971; Vences et al., 2002; Glaw and Vences, 2007; Randrianantoandro et al., 2009)” (Jenks et al., 2018). *F. campani* was reported from Ibitry, Ambohimitombo, Antobeaba and Ambatolampy (Brygoo, 1971), Andohariana, Andrangoaloa, Antananarivo, Antratra, Farihizazava, Itremo, Manjakatempo, Nosiarivo, Soamazaka, Tritriva, Vohisokina (Glaw and Vences, 2007) and Antoetra near Lake Mantasoa (Andreone et al., 2007). Vences et al. (2002) noted that historic records of *F. campani* need to be verified because of the small number of voucher specimens. The species was also reported to occur in Parc National d’Andringitra, where commercial collection is prohibited (Randrianantoandro et al., 2009; Jenkins et al., 2010). Its extent of occurrence was estimated at 14,513 km² (Jenkins et al., 2018).

Randrianantoandro et al. (2009) noted that the species may be limited to a few isolated high peaks. The population was reported to be severely fragmented and declining (Jenkins et al., 2018) and occurring in isolated massifs, which was thought to suggest a small area of occupancy (Jenkins et al., 2010). Brady and Griffiths (1999) reported that *F. campani* might be locally abundant in suitable habitat. However, a lack of quantitative information on the species’ populations was noted (Raxworthy and Nussbaum, 1996b; Vences et al., 2002 in Jenkins et al., 2010). In one location, Ankaratra, the species was recorded at densities of 12.2 individuals/ha (Randrianantoandro et al., 2009).

*F. campani* was categorised as Vulnerable in the IUCN Red List, based on its restricted range, its severely fragmented population and the decline in the extent and quality of montane heathland.
within its range (Jenkins et al., 201b). The population was believed to be declining (Jenkins et al., 201b).

Main threats to the species were reported to include habitat destruction and degradation (Jenkins et al., 201b). *F. campani* was reported to be of interest to the pet trade and used to be collected in large quantities (Carpenter et al., 2004). It was noted that illegal collection for the pet trade may also pose a threat (Jenkins et al., 2010), but that there was little information on quantities collected (Randrianantoandro et al., 2009). Illegal collection was reported from Ankaratra (Randrianantoandro et al., 2009), which was highlighted as the main collection site in an unpublished study (Ravoninjatovo and Rabemananjara, 1999 in Brady and Griffiths, 1999).

Jenkins et al. (2010) believed that the species was unlikely to be threatened by a small annual harvest, but highlighted major gaps in knowledge surrounding its biology. Jenkins et al. (2010) reported that the traditional collection site for the species, Ankaratra, was being designated as a new protected area [not yet designated as of 28/05/2015].

It was noted that the species is difficult to rear in captivity, possibly due to the difficulty in replicating the extremes in temperature it is subject to in the wild (IUCN/SSC Trade Specialist Group, 1993).
**Taxonomic Note**

*Furcifer petteri* was previously considered to be a subspecies of *Furcifer willsii*, but now considered to have full species status (Brady and Griffiths, 1999). Glaw and Vences (2007) noted that further study of the taxonomic relevance of the species’ variability in morphology, colouration and habitats should be carried out. It was noted that the taxonomic status of records from Parc National Tsingy de Bemaraha need clarification (Jenkins *et al.*, 2011).

**Trade patterns**

The genus *Furcifer* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo spp.*) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for *Furcifer petteri*, whereas in 2014 a quota for 300 (term not specified) and in 2015 a quota for 300 live specimens was published.

Direct exports of *F. petteri* from Madagascar to the EU-28 and the rest of the world over the period 2004-2013 comprised small numbers of wild-sourced bodies and specimens exported for scientific purposes (Table 13). EU imports were only reported by Portugal (six specimens in 2011) and Germany (remaining trade).

No indirect exports originating in Madagascar to the EU-28 or the rest of the world were reported over the period 2004-2013.
Table 13: Direct exports of *Furcifer petteri* from Madagascar to the EU-28 (EU) and the rest of the world (RoW), 2004-2013.

<table>
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<th>Importer Term (unit)</th>
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<th>Purpose</th>
<th>Reported by</th>
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<th>2011</th>
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</thead>
<tbody>
<tr>
<td>EU bodies</td>
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<td>Importer</td>
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<td>1</td>
<td>1</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>specimens</td>
<td>W S</td>
<td>Importer</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exporter</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RoW specimens (kg)</td>
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</tr>
</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 07/05/2015.

Conservation status

*Furcifer petteri* is a small chameleon, with males up to 90 mm SVL and females up to 71 mm SVL (Glaw and Vences, 2007). Roosting height was reported to be variable and locally different, from between 1 m and 5 m above the ground (Glaw and Vences, 2007).

*F. petteri* is endemic to Madagascar (Glaw and Vences, 2007), where it inhabits pristine rainforest and sub-humid forest (Glaw and Vences, 2007) at elevations from 120 m to 850 m above sea level (Rakotomalala and Raselimanana, 2003 in Jenkins et al., 2011m). It was also reported to occur in degraded habitats and in well vegetated gardens (Glaw and Vences, 2007).

*F. petteri* was reported to be restricted to the northwest, extending as far north as Montagne des Français, and it was apparently widespread in this region (Glaw and Vences, 2007). The species’ occurrence was reported from Antsiranana, Bora, Joffreville, and Sahafary forest (Glaw and Vences, 2007). The species was also reported to occur in Parc National de Montagne d’Ambre and Réserve Spéciale d’Ankarana (Rakotomalala and Raselimanana, 2003 in Jenkins et al., 2011m). Its extent of occurrence was estimated at 11,009 km$^2$ (Jenkins et al., 2011m).

While *F. petteri* was reported to be locally abundant, it was found to be rare at apparently similar places (Glaw and Vences, 2007). D’Cruze et al. (2007) found it be rare in a survey of Montagne des Français. In forest fragments near Montagne d’Ambre the species was reported to be common (Labanowski and Lowin, 2011), with the highest pooled density recorded at 65.6 individuals/ha (Lowin, 2012). *F. petteri* was also found in nine of 12 forests surveyed in the Loky-Manambato complex near Daraina, Antsiranana (Rakotondravony, 2006 in Jenkins et al., 2010).

*F. petteri* was categorised as Vulnerable in the IUCN Red List, due to its narrow range in northern Madagascar, its declining habitat and its severely fragmented population (Jenkins et al., 2011m). The species’ population was thought to be declining (Jenkins et al., 2011m).

Main threats to the species were reported to include fire, logging of timber and mining (Jenkins et al., 2011m).

Jenkins et al. (2011m) noted that further research should be carried out into the species’ ecological requirements, sensitivity to threats and population trends.
SAURIA: CHAMAELEONIDAE

Furcifer willsii II/B

SYNONYMS: Chamaeleon willsii, Chamaeleo willsii

COMMON NAMES: Canopy Chameleon (EN), Caméléon de la canopée (FR)

RANGE STATES: Madagascar

UNDER REVIEW: Madagascar

EU DECISIONS: Current no opinion i) for wild specimens from Madagascar formed on 02/12/2011. Previous Article 4.6(b) import restriction for wild specimens first applied on 19/09/1999 and last confirmed on 07/09/2011.

IUCN: Least Concern

**Trade patterns**

The genus *Furcifer* was listed in CITES Appendix II on 04/02/1977 (originally included in *Chamaeleo* spp.) and in Annex B of the EU Wildlife Trade Regulations on 01/06/1997. Madagascar has submitted annual reports for all years 2004-2013.

Between 2011 and 2013, Madagascar published zero CITES export quotas for *Furcifer willsii*, whereas in 2014 a quota for 500 (term not specified) and in 2015 a quota for 500 live specimens was published.

Direct exports of *F. willsii* from Madagascar to the EU-28 and the rest of the world over the period 2004-2013 comprised very small numbers of wild-sourced bodies and specimens exported for scientific purposes (Table 14). EU imports were only reported by Germany.

No indirect exports originating in Madagascar to the EU-28 or the rest of the world were reported over the period 2004-2013.

**Table 14**: Direct exports of *Furcifer willsii* from Madagascar to the EU-28 (EU) and the rest of the world (RoW), 2004-2013.

<table>
<thead>
<tr>
<th>Importer</th>
<th>Term (unit)</th>
<th>Source</th>
<th>Purpose</th>
<th>Reported by</th>
<th>2004</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU</td>
<td>bodies</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Exporter</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RoW</td>
<td>bodies</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Exporter</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>specimens</td>
<td>W</td>
<td>S</td>
<td>Importer</td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

**Taxonomic Note**

*Furcifer petteri*, previously considered a subspecies of *Furcifer willsii*, was elevated to full species status (Brady and Griffiths, 1999), with records from the north of the species’ range therefore requiring taxonomic confirmation (Jenkins et al., 2011d). Records from Parc National Tsingy de Bemaraha were thought to potentially represent *Furcifer willsii* (Jenkins et al., 2011d).
Conservation status

*Furcifer willsii* is a small chameleon species (Brady and Griffiths, 1999), with males up to 76 mm SVL and females up to 75 mm SVL (Glaw and Vences, 2007). Its roosting height was believed to possibly be higher than other species (Glaw and Vences, 2007; Jenkins *et al.*, 2010). Very little was known about this species’ habitat and ecology, with available information based on a limited number of observations (Jenkins *et al.*, 2010).

*F. willsii* is endemic to Madagascar (Jenkins *et al.*, 2010), where it occurs in the north and central northeast at altitudes from 600 m to 1300 m above sea level (Glaw and Vences, 2007). *F. willsii* was considered mostly restricted to mid-altitude humid forest, although it has been recorded in open areas (Andreone *et al.*, 2007). The species was reported in degraded habitats at forest edges (Jenkins *et al.*, 2010). A single observation from within relatively intact forest was reported (Raxworthy, 1988a; Glaw and Vences, 2007).

The species’ occurrence was reported from Ambolokopatrika, Ambavaniasy, Ambohimitombo, Andasibe, Andekaleka, Andrangoloaka, Farimanakava, Ikongo, Mandraka, and Tsaratanana (Glaw and Vences, 2007). It was noted that records from Ambohijanahary, previously assigned to *Furcifer petteri* (Jenkins *et al.*, 2011), have now been assigned to *F. willsii* (Jenkins *et al.*, 2011). The species was reported to occur in, or on the edge of Parc National d’Analamazaotra, in Parc National de Ranomafana, Anjozorobe-Angavo, and Zahamena-Andriamirina (Jenkins *et al.*, 2010). Glaw and Vences (2007) reported that a single record from dry deciduous forest in Parc National d’Ankarafantsika in western Madagascar needed to be verified. Its extent of occurrence was estimated at 100,350 km² (Jenkins *et al.*, 2011).

*F. willsii* was reported to be uncommon throughout its range (Jenkins *et al.*, 2010). It was considered to be present at a low abundance in an area of the Anjozorobe-Angavo forest corridor (Raselimanana and Andriamampianonina, 2007 in Jenkins *et al.*, 2010). In a survey of five forest areas in eastern Madagascar, *F. willsii* was reported only from Perinet [Analamaotra] (Raxworthy, 1988b in Jenkins *et al.*, 2010). The species was reported at only one location (Iofa) and considered rare overall in a survey of the Mantadia-Zahamena Corridor [eastern Madagascar] (Rabibisoa *et al.*, 2005 in Jenkins *et al.*, 2010).

*F. willsii* was categorised as Least Concern in the IUCN Red List, as the species’ decline was not rapid enough to warrant a more threatened category listing, and it has a wide distribution range in eastern and northern Madagascar (Jenkins *et al.*, 2011). The species was reported to have a decreasing population trend (Jenkins *et al.*, 2011).

The main threat to the species was reported to be the loss, degradation and fragmentation of humid forest (Jenkins *et al.*, 2011). In the 1990s, large-scale collection of individuals for trade was noted to have likely been a contributor to localised declines (Brady and Griffiths, 1999). *F. willsii* was reported to have been one of the most commonly exported species between 1989 and 1993 until CITES parties suspended all imports from Madagascar (Brady and Griffiths, 1999). Illegal collection for trade was also thought to potentially pose a threat (Jenkins *et al.*, 2011).
References


IUCN 2008. Implementing the CBD POWPA. Parks, 17(1).


# Appendix

## Table 1: Purpose of trade

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>Commercial</td>
</tr>
<tr>
<td>Z</td>
<td>Zoo</td>
</tr>
<tr>
<td>G</td>
<td>Botanical garden</td>
</tr>
<tr>
<td>Q</td>
<td>Circus or travelling exhibition</td>
</tr>
<tr>
<td>S</td>
<td>Scientific</td>
</tr>
<tr>
<td>H</td>
<td>Hunting trophy</td>
</tr>
<tr>
<td>P</td>
<td>Personal</td>
</tr>
<tr>
<td>M</td>
<td>Medical (including biomedical research)</td>
</tr>
<tr>
<td>E</td>
<td>Educational</td>
</tr>
<tr>
<td>N</td>
<td>Reintroduction or introduction into the wild</td>
</tr>
<tr>
<td>B</td>
<td>Breeding in captivity or artificial propagation</td>
</tr>
<tr>
<td>L</td>
<td>Law enforcement / judicial / forensic</td>
</tr>
</tbody>
</table>

## Table 2: Source of specimens

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>Specimens taken from the wild</td>
</tr>
<tr>
<td>R</td>
<td>Ranched specimens: specimens of animals reared in a controlled environment, taken as eggs or juveniles from the wild, where they would otherwise have had a very low probability of surviving to adulthood</td>
</tr>
<tr>
<td>D</td>
<td>Appendix-I animals bred in captivity for commercial purposes in operations included in the Secretariat's Register, in accordance with Resolution Conf. 12.10 (Rev. CoP15), 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</td>
</tr>
<tr>
<td>A</td>
<td>Plants that are artificially propagated in accordance with Resolution Conf. 11.11 (Rev. CoP15), 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)</td>
</tr>
<tr>
<td>C</td>
<td>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</td>
</tr>
<tr>
<td>F</td>
<td>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</td>
</tr>
<tr>
<td>U</td>
<td>Source unknown (must be justified)</td>
</tr>
<tr>
<td>I</td>
<td>Confiscated or seized specimens (may be used with another code)</td>
</tr>
<tr>
<td>O</td>
<td>Pre-Convention specimens</td>
</tr>
</tbody>
</table>