Review of *Chelonoidis carbonaria* from Suriname (source F)

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Introduction and summary

This report reviews the conservation status and trade levels of *Chelonoidis carbonaria* from Suriname, with particular focus on trade in captive-born (source F) specimens, to inform discussions by the Scientific Review Group on the sustainability of trade.

CITES Resolution Conf. 12.3 (Rev. CoP16) recommends that source code F indicates "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" and that source code R indicates "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".

Permits for both sources F and R require a non-detriment finding and there are a number of European Union decisions at the species/country level for these sources. The SRG is currently assessing these decisions. Based on information presented at the 66th meeting of the SRG, the Chair invited Member States to provide comments on the suggested treatment of the currently valid decisions by 10th of January 2014. The SRG subsequently decided that a number of opinions may warrant more in-depth review, with particular focus on trade in sources F and R, and the following species/country combinations were selected:

- *Python regius* from Togo
- *Stigmochelys pardalis* from Mozambique and Zambia
- *Chelonoidis carbonaria* from Suriname

This report presents a review of *C. carbonaria* and any information on captive production in Suriname.

This review and others listed above indicate that countries may not always be using the most appropriate source codes, as evidenced in trade reporting patterns and where information is available on production systems. Differences over the interpretation of source codes may, in some cases, have led to the introduction of EU trade restrictions for specimens from particular sources.

Where there are concerns that source codes may not match the production system in use, it may be appropriate to adopt a no opinion (iii): *Referral to the SRG* (the species is not currently/only rarely in trade, but is of sufficient conservation concern that the SRG has determined that any application must be referred to the SRG for a decision before a permit is issued or refused). This would enable an exchange of information with the exporting country and identification of the appropriate source code.

Furthermore, the application of country-level opinions for sources F and R may not be straightforward where new facilities become involved in the production of specimens.
**SYNONYMS:** *Geochelone carbonaria, Testudo boiei, Testudo carbonaria*

**COMMON NAMES:** Red-footed tortoise (English), Tortue charbonnière (French), Tortuga de patas rojas (Spanish)

**RANGE STATES:** Anguilla (int.), Antigua and Barbuda (int.), Argentina, Barbados (int., ext.), Bolivia (Plurinational State of), Brazil, British Virgin Islands, Colombia, Dominica (int.), French Guiana, Grenada (int.), Guyana, Montserrat (int.), Panama, Paraguay, Saint Vincent and the Grenadines (int.), Suriname, Trinidad and Tobago, Venezuela (Bolivarian Republic of), Virgin Islands of the USA (int.)

**UNDER REVIEW:** Suriname

**EU DECISIONS:**
- Current no opinion iii) for wild specimens from Anguilla, Antigua and Barbuda, Barbados, Bolivia (Plurinational State of), Brazil, British Virgin Islands, Colombia, Dominica, Grenada, Montserrat, Paraguay, Saint Vincent and the Grenadines, Trinidad and Tobago, Venezuela (Bolivarian Republic of) and Virgin Islands of the USA first formed on 15/12/1997 and confirmed on 25/06/2004.
- Current no opinion iii) for wild specimens from Argentina and Panama formed on 10/12/1999 and confirmed on 25/06/2004. Previous Article 4.6(b) import restriction for wild specimens from Argentina and Panama first applied on 22/12/1997 and removed on 24/09/2000.
- Current no opinion ii) for wild specimens from Guyana formed on 07/02/2013 and confirmed on 28/05/2013. Previous positive opinion for wild specimens from Guyana formed on 15/12/1997 and removed on 07/02/2013.
- Current positive opinion for wild specimens from Suriname formed on 15/05/2002, and positive opinion for source F specimens with $< 7$ cm plastron length formed on 22/02/2000. Previous no opinion iii) for wild specimens from Suriname formed on 15/12/2000 and removed on 15/05/2002.

**IUCN:** Not evaluated
Trade patterns

Suriname published export quotas for 630 live, wild-sourced *Chelonoidis carbonaria* every year 2003-2014. Trade appears to have remained within the quota in every year, according to data reported by both the importers and Suriname (Table 1).

Direct exports of *C. carbonaria* from Suriname to the EU-28 2003-2012 comprised a moderate number of wild and captive-born live specimens exported for commercial purposes (Table 2). The main importer was the Netherlands. Trade data by EU Member State is available here: https://db.tt/4S7755QS.

The only indirect exports of *C. carbonaria* to the EU-28 2003-2012 originating in Suriname consisted of 10 wild-sourced live specimens imported via the United States, as reported by importers.

Table 1: CITES export quotas for live *Chelonoidis carbonaria* from Suriname and global direct exports, as reported by importers and exporters, 2003-2014. Virtually all trade was for commercial purposes. For each year, trade to which the quota does not apply is greyed out; in 2010-2012 the quota applied to wild-sourced specimens. (At the time of data extraction, Suriname’s annual report for 2012 had not yet been received; trade data for 2013 and 2014 are not yet available.)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Quota (live)</td>
<td>630</td>
<td>630</td>
<td>630</td>
<td>630</td>
<td>630</td>
<td>630</td>
<td>630</td>
<td>630</td>
<td>630</td>
<td>630</td>
<td>630</td>
<td>630</td>
</tr>
<tr>
<td>W Importer</td>
<td>380</td>
<td>403</td>
<td>411</td>
<td>508</td>
<td>369</td>
<td>279</td>
<td>166</td>
<td>168</td>
<td>165</td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exporter</td>
<td>427</td>
<td>503</td>
<td>429</td>
<td>466</td>
<td>419</td>
<td>324</td>
<td>179</td>
<td>324</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 16/04/2014.

Table 2: Direct exports of *Chelonoidis carbonaria* from Suriname to the EU-28 (EU) and the rest of the world (RoW), 2003-2012. All trade was in live specimens. (At the time of data extraction, Suriname’s annual report for 2012 had not yet been received.)

<table>
<thead>
<tr>
<th>Importer</th>
<th>Source</th>
<th>Purpose</th>
<th>Reported by</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU F T</td>
<td>Importer</td>
<td>80</td>
<td>100</td>
<td>160</td>
<td>41</td>
<td>150</td>
<td>250</td>
<td>100</td>
<td>150</td>
<td>117</td>
<td>1098</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exporter</td>
<td>80</td>
<td>100</td>
<td>160</td>
<td>25</td>
<td>150</td>
<td>200</td>
<td></td>
<td></td>
<td>715</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W T</td>
<td>Importer</td>
<td>134</td>
<td>110</td>
<td>160</td>
<td>254</td>
<td>148</td>
<td>84</td>
<td>16</td>
<td>76</td>
<td>80</td>
<td>149</td>
<td>1211</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exporter</td>
<td>134</td>
<td>125</td>
<td>187</td>
<td>229</td>
<td>158</td>
<td>99</td>
<td>338</td>
<td>93</td>
<td>125</td>
<td>1588</td>
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<tr>
<td>RoW F T</td>
<td>Importer</td>
<td>22</td>
<td>27</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Exporter</td>
<td>16</td>
<td>50</td>
<td>54</td>
<td>6</td>
<td>126</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>W S</td>
<td>Importer</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exporter</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>Importer</td>
<td>246</td>
<td>293</td>
<td>251</td>
<td>254</td>
<td>221</td>
<td>195</td>
<td>150</td>
<td>92</td>
<td>85</td>
<td>51</td>
<td>1838</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exporter</td>
<td>293</td>
<td>377</td>
<td>242</td>
<td>237</td>
<td>261</td>
<td>225</td>
<td>168</td>
<td>86</td>
<td>99</td>
<td>1968</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 16/04/2014.
Taxonomic note

*Chelonoidis carbonaria* was previously included in the genus *Testudo* and more recently, *Geochelone* (Fritz and Havaš, 2007). Through an analysis of mitochondrial and nuclear genes, Le et al. (2006) placed the species within the genus *Chelonoidis*, and this was accepted in the current CITES Standard Nomenclature (Fritz and Havaš, 2007).

Conservation status

*C. carbonaria* is a relatively large South American tortoise that occupies a wide range of habitats, including savannas and adjacent forest areas (Vargas-Ramírez et al., 2010; Walker, 1989; Ojasti, 1996), from dry forests to rainforests (Pingleton, 2009). It reaches sexual maturity at approximately 8-12 years (Pingleton, 2009) and produces clutches of 2-15 eggs (Kaur, 2011). Bonin et al. (2006) reported up to four clutches per year, with around 12 eggs per clutch. In a study conducted at a commercial turtle farm in Venezuela, Hernández and Boede (2008) found that females were capable of producing a maximum of eight clutches per year. Lowman (1996; in Pingleton, 2009) reported 6-8 clutches per year of 3-6 eggs in captivity. However, Garsteccki (2006) considered the species’ reproductive potential to be low. Life spans of 56-66 years were recorded (Pingleton, 2009).

The range of *C. carbonaria* was reported to reach from Panama, Venezuela, Colombia and the Guianas in the north to Bolivia, eastern Brazil, Paraguay (King and Burke, 1989; Iverson, 1992; Bonin et al., 2006; Ernst et al., 2006; Fritz and Havaš, 2007; van Dijk et al., 2012), northern Argentina (Ernst et al., 2006; Fritz and Havaš, 2007; van Dijk et al., 2012), Ecuador and Peru (King and Burke, 1989; Iverson, 1992; Ernst et al., 2006; Fritz and Havaš, 2007). Introduced populations were reported to occur on several Caribbean islands (Bonin et al., 2006; van Dijk et al., 2012). By using projected range maps, Buhlmann (2009) estimated the total range of the species to be 6 232 342 km².

The species has not been assessed for the IUCN Red List to date. The species was considered ‘not threatened globally’ in the CITES Review of Significant trade in 1993 (WCME et al., 1993) and Bonin et al. (2006) considered it to be abundant throughout its range and not directly threatened. However, population declines were reported in some areas (Walker, 1989; WCME et al., 1993), particularly affecting island populations (Kaur, 2011). Furthermore, in a more recent draft assessment by the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group in 2011, *C. carbonaria* was categorized as ‘Vulnerable’, and it was noted that its wide distribution was “associated with regional variability and conservation focus of different lineages”, and that there was a lack of information on population dynamics throughout the range (IUCN/SSC Tortoise and Freshwater Turtle Specialist Group, 2012).

Bonin et al. (2006) considered habitat loss to be the main threat to the species. However, in genetic analyses conducted on Brazilian populations, Farias et al. (2007) found evidence of recent population expansion as a result of increases in suitable habitats.

Many authors considered overhunting to be the main threat to *C. carbonaria* (Walker, 1989; Spiess, 1997; Kaur, 2011). Spiess (1997) considered *C. carbonaria* to be susceptible to overhunting due to its slow maturation and relatively low clutch size. *C. carbonaria* was reported to be exploited for food throughout its range (Hernández, 1997), and Bonin et al. (2006) indicated that it was commonly found in domestic markets. However, Pingleton (2009) noted that *C. denticulata* was usually preferred as food over *C. carbonaria* in areas where the two are sympatric, and Strong (2006) considered the impacts of hunting overall to be insufficiently known.

*C. carbonaria* was also reported to be commonly captured and kept as a pet in many range countries (IUCN/SSC Tortoise and Freshwater Turtle Specialist Group, 2012), and it was also considered popular in
the international pet trade (Senneke and Tabaka, 2003) due to its relatively small size, attractive coloration and hardiness (Pingleton, 2009; Spiess, 1997). Spiess (1997) reported that capture for export had a negative impact on populations, although not as significant as hunting for food. In the 1990s, substantial increases in trade levels were thought to potentially cause population depletion (WCMS et al., 1993).

Adult individuals available for sale were reported to be most commonly of wild-caught origin (Pingleton, 2009). Vinke and Vinke (2010) believed that wild-caught animals were also laundered amongst C. carbonaria exported as “farm-bred” and that exports of captive-produced tortoises of this species were subject to corruption and lack of controls (Vinke and Vinke, 2008). In general, imported wild-caught tortoises were considered susceptible to health problems, whereas captive-bred and ranched specimens were thought to generally be healthy (Pingleton, 2009).

**Suriname**

Within Suriname, the species was reported to occur on the coastal areas as well as in the southern part of the country (Pingleton, 2009). The distribution maps of Walker (1989) and Iverson (1992) displayed several occurrence records on the northern half of the country, and one on the southern tip. C. carbonaria was reported to be found predominantly in the savannah areas of Suriname, with densities being much lower in forested areas (Pritchard, 1979).

No information was located on the species’ conservation status in Suriname.

The species’ population in Suriname was believed to have been subject to substantial declines due to the levels of international trade, which was highlighted to take place without assessment of the sustainability of trade and potential future effects (Vinke and Vinke, 2008). The IUCN/SSC Tortoise & Freshwater Turtle Specialist Group (2012) pointed out that individuals collected in Guyana and French Guyana were transported to Suriname, where they were sold in the domestic market or exported. Duplaix (2001) considered the smuggling of reptile species between the three countries to be common.

A positive opinion for specimens up to 7 cm plastron length was formed at SRGI6.

No information was identified on the captive production or ranching for the species in Suriname.

All reptiles in Suriname appear to be protected under the Game Law, apart from those designated as game species, ‘cage species’ (to be trapped alive) or harmful species, for which seasons and bag sizes are established (Suriname, 1954). C. carbonaria is classified as a ‘cage species’ and a bag limit of two individuals and a seasonal hunting closure from August to December applies in the northern region (Ministerie van RGB, 2013). No bag limits or seasonal hunting closures apply for the southern zone of the country (Ministerie van RGB, 2013).
References


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>