CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Fifteenth meeting of the Conference of the Parties
Doha (Qatar), 13-25 March 2010

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Inclusion of *Dynastes satanas,* (Moser, 1909) Figure 1, in Appendix II, in compliance with Article II, paragraph 2 (a). Criteria for inclusion [Resolution Conf. 9.24 (Rev. CoP13), Annex 2 a].

It is known, or can be inferred or projected, that the regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future.

B. Proponent

Plurinational State of Bolivia*

C. Supporting statement

1. Taxonomy

1.1 Class: Insecta

1.2 Order: Coleoptera

1.3 Family: Scarabaeidae

1.4 Subfamily: Dynastinae

1.5 Species: *Dynastes satanas* Moser, 1909

1.6 Common names: English: Satanas beetle
Spanish: Escarabajo rompefocos

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* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat or the United Nations Environment Programme concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

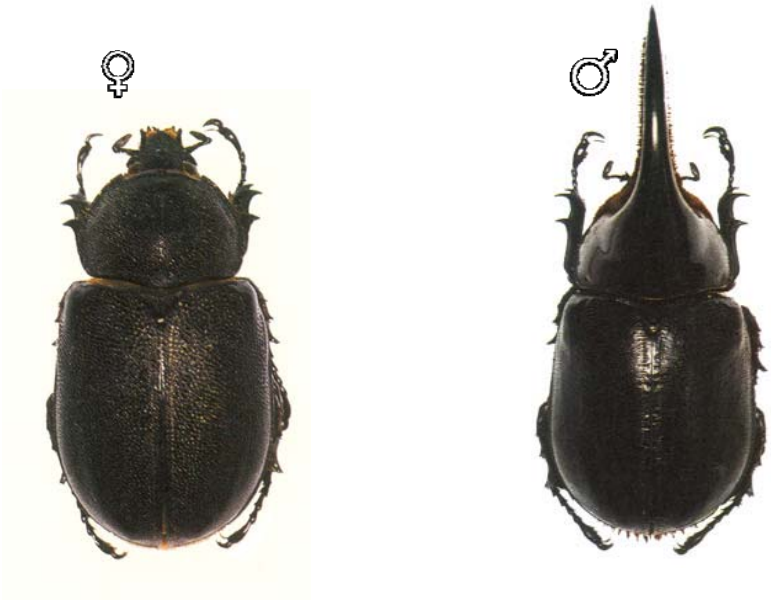

Figure 1. Dorsal view of female and male *Dynastes satanas*

Figure 2. Satanas beetle (*Dynastes satanas*)

2. Overview

For decades, illegal collectors from various countries (China, Japan, Peru and France, among others) have explored the forests of Bolivia, particularly the montane forest region, with the aim of collecting insects to sell them.

At present, the Satanas beetle (*Dynastes satanas*) is subject to inappropriate management and illegal trade by Bolivian and foreign traders, mainly out of the town of Coroico in La Paz department, Bolivia (Moser, 1909). The species is considered endemic to Bolivia (Lachaume, 1895), where it has only been recorded so far in the departments of La Paz and Cochabamba.

The Satanas beetle has the following characteristics: 1) it is large, 2) has two horns, 3) is attractive to humans, and 4) is harmless to humans. Because of this, it is in demand in other countries for breeding aimed at the pet industry and for fighting exhibitions, with a strong impact on the global market, according to data obtained from several Internet websites. As a result, several traders promote the capture of and trade in the species, involving farmers of the region in this illicit activity.

3. Species characteristics

3.1 Distribution

The range of the Satanas beetle includes the municipalities of Zongo, Suapi, Chairo, Pacallo, Charobamba, Coroico Viejo, Yolosa, Santo Domingo, Florida, Villa Aspiazu, Chojlla, Chulumani, Irupana, Apa Apa and San Juan de la Miel in the department of La Paz, and Yungas del Chapare (no specific municipality) in the department of Cochabamba.

Figure 2. Geographical location of the range of the Satanas beetle in the department of La Paz

3.2 Habitat

The species occurs at elevations ranging from 900 to 2,000 m. The climatological characteristics of its habitat are temperatures between 7º C and 24º C and mean annual rainfall ranging from 1,500 mm to 6,000 mm. The habitat is characterized by humid evergreen forest of medium to low height (5-15-25/30 m) in patches with various succession stages caused by natural landslides. The area has several elevation levels with very different types of evergreen vegetation.

The eastern slope of the high Bolivian Andes has two levels of condensation with maximum rainfall. In south-eastern Bolivia, they coincide with montane humid evergreen forests and sparse cloud forests (Gerold, 1987). Due to the simultaneous decrease in altitude and potential evapotranspiration, the Yungas region is mainly characterized by soil moisture with permanent annual percolation (Gerold *et al*., 2003). Consequently, soil development is influenced by clay formation, leaching and water-logging. Warm areas are still dominated by Acrisols and Lixisols (e.g. Alto Beni, Elbers, 1991), whereas the high and temperate submontane and montane areas feature many dystric, chromic and humic Cambisols. In higher montane areas (from 2,000/2,100 m in Nor Yungas), soil development is marked by podzolization and water-logging processes. According to their relief and surface horizon, soils can be highly acidic and poor in nutrients (i.e. haplic podzols, ferric podzols and gleyic podzols). The transition to subalpine levels in cloud forests is marked by highly organic horizons: gleyic podzols and some histosols.

The humid mountain ecosystems of the Yungas region are adapted to extreme conditions of nutrient scarcity and obtain the organic matter they need in singular ways.

Coroico Viejo and Santo Domingo, two municipalities where the species has been recorded several times, include areas where vegetation has been highly disturbed by human influence owing to their favourable climate, as temperatures are warm during the day and mild at night. These places are surrounded by large

grasslands, with grass species such as *Andropogon, Setaria* and *Panicum,* among others, and a combination of shrubs such as *Pteridium, Miconia, Baccharis* and *Tibouchina* forming a strip that borders the original and secondary forest. High areas are characterized by the typical vegetation of humid montane forests with steep slopes and deep ravines, including tree species of the genera *Ficus, Campyloneurum, Inga, Erytrina, Spodians* and *Ladenbergia*, and plants of the genus *Piper* in the mid-story, often accompanied by species of the genera *Morus* and *Allophylus.* Common plants include epiphytes such as *Asplenium, Pteridium* and *Blechnum*, among others, as well as tree ferns of the genera *Alsophila* and *Cyathea*. The forest next to Coroico Viejo and south east of Santo Domingo by the Kory Huayco River has highly disturbed vegetation, given that the colonization of the area dates back to very early times. Indeed, a pre-Hispanic trail exists in the area, with species of the genera *Erytroxylum, Cinnamomum* and *Cedrela*, of the families Annonaceae and Piperaceae, and palms of the genera *Aiphanes* and *Bactris* (Paniagua-Zambrana *et al*., 2003).

3.3 Biological characteristics

This endemic species to the Yungas region in Bolivia reproduces by laying eggs. The egg cycle is completed in about 2 months, when the eggs hatch; the caterpillar goes through three larval stages that last between 1 year and a half and 2 years before reaching the pupal stage. The pupa becomes an adult beetle in about 2 months. The Satanas beetle lays approximately 25 to 40 eggs.

3.4 Morphological characteristics

Adult males are black, with densely and finely punctate elytra, which give them a glossy appearance. They have no lateral horns at the base of the thoracic horn. The underside of the thoracic horn is covered with abundant yellow hair.

There is sexual dimorphism between females and males. Female Satanas beetles do not have a thoracic horn; the apex of their elytra is as densely and almost as strongly punctate as the pronotal disc and is not shiny.

3.5 Role of the species in its ecosystem

There is little information available about the role of the species in its ecosystem. However, it is known that the Satanas beetle can feed on trunks in its larval stage, acting as a wood-decomposing species in the ecosystem. The species is also prey for several bird species such as *Momotus momota*, which beats the beetle against a rock to break its shell.

4. Status and trends

4.1 Habitat trends

Over the last few decades, the area where the species occurs in Bolivia has essentially been characterized by the development of agriculture, which mainly implies deforestation and the expansion of the agricultural frontier. In high areas, the soils of areas with steep slopes have often been degraded, leading to an increase of the surface profile. Colonization leads to strong degradation processes owing to the intensive exploitation of natural resources.

4.2 Population size

In a study undertaken by Vidaurre & Guerra in 2008 in San Juan de la Miel and Santo Domingo (Nor Yungas province, La Paz department), 500 to 600 adult individuals were captured in one site in five nights using two light traps.

4.3 Population structure

The population structure does not show a clear differentiation between females and males. Females are more abundant than males during certain periods, whereas the opposite is true on other occasions.

4.4 Population trends

No information is available.

4.5 Geographic trends

No information is available.

5. Threats

The expansion of agriculture is causing habitat loss for this species. In particular, plantations of fruit trees and coca and the burning of grasslands are reducing the habitat available for the Satanas beetle. In addition to this, adult specimens of the species are harvested to be traded internationally without any measures taken to guarantee the sustainable management of the species.

6. Utilization and trade

6.1 National utilization

The species is not part of any sustainable harvest scheme. A few pilot harvest projects are being implemented in some communities of the species range, but there are no direct harvest projects officially authorized by the Bolivian government.

6.2 Legal trade

There is no legal trade in the species.

6.3 Parts and derivatives in trade

No parts or derivatives of the species are traded; only live or dead individuals are traded.

6.4 Illegal trade

In December 2006, two Japanese citizens (Hideyuki Suzuky and Yayoi Suzuky) applied to collect 200 insects of the species *Dynastes satanas* and transport them to the city of Osaka, Japan. The application was refused by the National Environment Competent Authority (*Autoridad Ambiental Competente Nacional*) on the following grounds: the proposed harvest contravened the regulations in force, lacked a scientific basis, and did not correspond to the responsibilities adopted by the country according to the Convention on Biological Diversity signed by Bolivia in 1992.

In June 2007, Ms. Patricia Galeano, a public official of the Ministry of the Environment of the Republic of Ecuador, reported the arrest of Masatsugu Hosogushi, a Japanese citizen who was carrying 423 beetles from the Yungas region in Bolivia. The specimens were seized at Mariscal Sucre airport in Quito, Ecuador. The former Bolivian Department of Biodiversity, Forest Resources and Environment (*Viceministerio de Biodiversidad, Recursos Forestales y Medio Ambiente*) requested the repatriation of the confiscated specimens, and the necessary administrative procedures were undertaken before the Ministry of Foreign Affairs and the Embassy of Ecuador in Bolivia. In August 2007, 211 Satanas beetles that had been confiscated in the Republic of Ecuador were repatriated and deposited with a research project carried out in Nor Yungas, La Paz department, Bolivia.

In October 2007, four people were reported to the authorities, two Bolivian citizens, a German citizen and a Peruvian citizen, for transporting specimens of *Dynastes satanas* from the town of Coroico to the city of La Paz and subsequently to an unknown destination. Measures have been taken to arrest these people and an inquiry has been opened in the prosecutor’s office of the city of La Paz for this purpose.

6.5 Actual or potential trade impacts

To date, the Satanas beetle is in high demand for international trade. Specimens are used as ornamental insects and are reported to be used by entomologists and collectors all around the world.

7. Legal instruments

7.1 National

The main legal provisions that govern wildlife conservation are the following:

- **Supreme Decree No. 22641** of 8 November 1990, establishing a general and indefinite ban on disturbing, taking, possessing or using wild animals or plants, their parts or derivatives.
- **Supreme Decree No. 25458,** which ratified the general and indefinite ban above, allowing the sustainable use of some wild species on the basis of sustainable-use plans, studies or inventories for certain taxonomic groups that determine the feasibility of their harvest and quotas allowed for two-year periods subject to prior regulation by the National Environment Competent Authority.
- The **Environment Act** (Act 1333, enacted in 1992), establishing the obligation of sustainable use of authorized species on the basis of technical, scientific and economic data. The Act also sets the regulations for control and enforcement by the relevant authorities.
- **Resolution No. 309** of December 2006 issued by the National Environment Competent Authority, laying out the technical standard with guidelines on the preparation and submission of Management Plans for Wild Animals.
- **Resolution No. 024** of 2009 issued by the National Environment Competent Authority, regulating scientific research on biological diversity in Bolivia.

7.2 International

There are no international instruments for the conservation of the Satanas beetle; the species is not included in any international agreement on wild animals and has no international legal status.

8. Species management

8.1 Management measures

There are no management measures taken for the species.

8.2 Population monitoring

Studies are being undertaken to determine the life history and population of the species, since it is an endemic species with very reduced and fragmented habitat. According to local people, the populations of the species are very small.

8.3 Control measures

8.3.1 International

At present, there are no international regulations on trade in the Satanas beetle. In South America, there are limited bans on trade in insects. Therefore, it is necessary to regulate trade in the species.

8.3.2 Domestic

Domestic controls fall under the responsibility of the National Environment Competent Authority, in coordination with decentralized departments and other wildlife authorities, such as the National Health Authorities (*Servicio Nacional de Sanidad e Inocuidad*, SENASAG), the Directorates of Natural Resources (*Direcciones de Recursos Naturales*) of Bolivian departments, Customs and the national police.

8.4 Captive breeding

There are pilot projects under way for the use of the species. One of the main projects is entitled ‘Basis for the sustainable use of beetles (Order: Coleoptera) in the low section of the National Park and Integrated Management Natural Area of Cotapata-sub Central Pacollo. The project is aimed at promoting captive breeding of the species and the conservation of the species in the wild.

Bolivia is internationally considered to be an example of sustainable use of wild species by local communities in mixed systems that include harvest of wild specimens and captive breeding.

8.5 Habitat conservation

Regulations on habitat conservation are being modified, especially the Environment Act No. 1333 dealing with the powers of decentralized bodies or autonomous bodies. Moreover, the General Wildlife Regulation (*Reglamento General de Vida Silvestre*) is being reviewed to adapt it to activities currently undertaken with regard to wildlife.

9. Information on similar species

Dynastes granti, (Horn, 1870): USA - Arizona

Dynastes hercules, Hercules beetle (Linnaeus, 1758): Central and South America

Dynastes hyllus, (Chevrolat, 1843): Mexico, Belize, El Salvador, Honduras, Guatemala, Nicaragua
Male: 35-70 mm; female : 30-45 mm

Dynastes maya, (Hardy, 2003): Mexico, Guatemala. Male: 50-90 mm; female: 40-50 mm

Dynastes miyashitai, (Yamaya, 2004): Mexico. Male: 50-90 mm; female: 40-50 mm

Dynastes neptunus, Neptune beetle (Quensel in Schönherr, 1805): South America: Colombia

Dynastes tityus, Unicorn beetle (Linnaeus, 1763): United States

10. Consultations

None

11. Additional remarks

None

12. References

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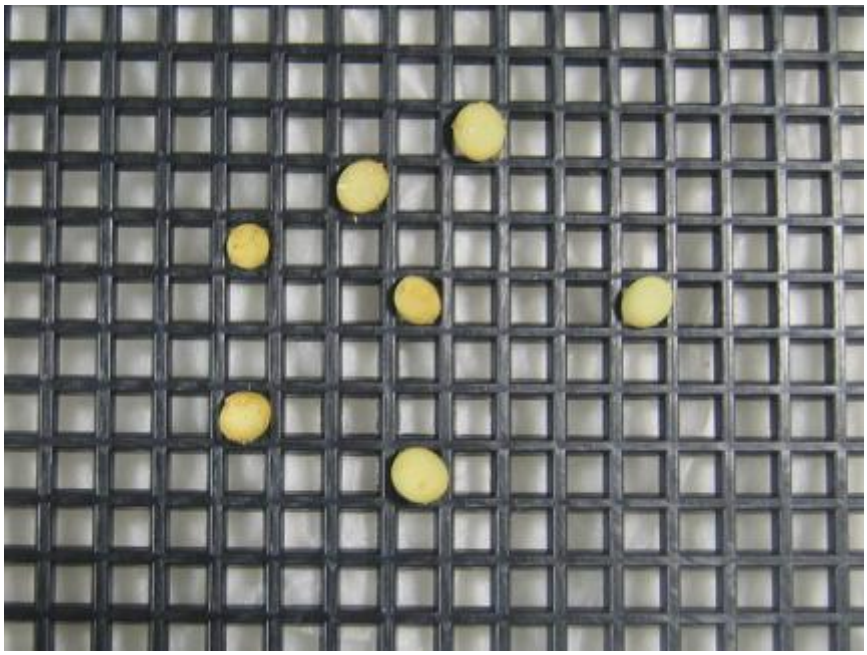


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