Review of *Cibotium barometz* and *Flickingeria fimbriata* from Viet Nam

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CITATION

PREPARED FOR
The European Commission, Brussels, Belgium

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1. Introduction

Export quotas are usually established by each Party to CITES unilaterally, but they can also be set by the Conference of the Parties or result from recommendations of the Animals and Plants Committees. In general, there is no specific requirement in the text of the Convention to establish quotas to limit the trade in CITES-listed species.

When a country sets its own national export quotas for CITES species, it should inform the Secretariat [see Resolution Conf. 12.3 (Rev. CoP15)], which in turn informs the Parties. Early in each year, the Secretariat publishes a Notification to the Parties containing a list of export quotas of which it has been informed. Quotas generally relate to a calendar year (1 January to 31 December) except for sturgeon quotas, which since 2008 are issued according to quota-years spanning from 1 March to 28 February.

UNEP-WCMC produced an ‘Analysis of 2010 CITES export quotas’ (circulated intersessionally on 28/06/2010) from which thirteen species/country combinations and three genera were selected for review based on new or increased quotas in 2010. These reviews were presented at the 53rd meeting of the Scientific Review Group. Following an update on quotas published since the analysis was produced, the SRG requested that two additional species/country combinations be reviewed:

- Cibotium barometz/Viet Nam: Quota of 250,000 kg dry weight in 2009 and 2010
- Flickingeria fimbrata/Viet Nam. Quota of 10,000 kg dry weight in 2009 and 2010

The latest quotas for these two species/country combinations were published on the CITES website (www.cites.org) on 01/09/2010.

Trade data included in this report were downloaded from the CITES Trade Database on 07/10/2010.
2. Species reviews

REVIEW OF CIBOTIUM BAROMETZ AND FLICKINGERIA FIMBRIATA FROM VIET NAM

DICKSONIACEAE

SPECIES: Cibotium barometz

SYNONYMS: -

COMMON NAMES: gou ji (Chinese), goudharige hondsvaren (Dutch), felci arboree (Italian), cau tich (Vietnamese), Scythian Lamb, Tartarian Lamb, Golden Lamb, Chain Fern Rhizome, Cibot Rhizome, Cibota, Cibotum, Lamb of Tartary (English)

RANGE STATES: China, Hong Kong (Special Administrative Region of China), India, Indonesia, Japan, Malaysia, Myanmar, Papua New Guinea, Philippines, Taiwan (Province of China), Thailand, Viet Nam

RANGE STATE UNDER REVIEW: Viet Nam

IUCN RED LIST: Not evaluated

PREVIOUS EC OPINIONS: -

TRADE PATTERNS:

Viet Nam issued an export quota of 250 000 kg (250 tonnes) dry weight for C. barometz in 2009 and 2010.

There have never been any reported exports of C. barometz from Viet Nam to the EU since its listing in Appendix II in 1985, nor has there been any reported indirect trade into the EU of C. barometz originating in Viet Nam. Direct exports from Viet Nam to countries other than EU-27 over the period 1999-2008 consisted of wild-sourced dried plants and roots, totalling 568.5 tonnes of dried plants and 456 tonnes of roots, as reported by Viet Nam (Table 1). Annual exports of both dried plants and roots decreased over this ten year period.
Table 1. Direct exports of *Cibotium barometz* from Viet Nam to countries other than EU-27, 1999-2008. All trade was in kg of wild-sourced specimens for commercial purposes.

<table>
<thead>
<tr>
<th>Importer</th>
<th>Term</th>
<th>Reported by</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
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<th>2008</th>
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<td>56500</td>
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</table>
**CONSERVATION STATUS in range states**

*Cibotium barometz* is a large terrestrial tree fern with leaves over 2 m long (WHO, 1990). It was described to have a stump-like rhizome, about 5-8 cm in diameter (Chandra, 1970). Maturation was reported to take over four years, after which a large quantity of spores are produced yearly (Nguyen et al., 2009). Old rhizomes were reported to be capable of sprouting lateral buds (Nguyen et al., 2009).

*C. barometz* was reported to occur in acid soils (Zhang et al., 2008; Wu et al., 2010), amongst non-calcareous rocks and on steep ground in mountain forests (van Steenis and Holttum, 1982) and in valleys, forest edges and open places at elevations up to 1600 m (Wu et al., 2010). It was reported to form sometimes large and dense communities in valleys and forest edge areas (Nguyen et al., 2009).

The species’ distribution was reported to cover southern parts of China, northeast India, western Malay Peninsula, Indonesia (from Java to Sumatra), Myanmar, Thailand, Viet Nam, Japan (Zhang et al., 2008; Wu et al., 2010), Taiwan (van Steenis and Holttum, 1982), Laos and Philippines (Nguyen et al., 2009).

The global population trend was estimated to be decreasing (Zhang et al., 2008; Nguyen et al., 2009).

*C. barometz* was reportedly used in Southeast Asia for medicinal purposes and as food and fibre (Lemmens et al., 1989). Its rhizomes and roots were reported to be collected for medicinal uses, including use as blood coagulant and treatment of ulcers, rheumatism, typhoid and coughs (Puri, 1970; May, 1978; Nguyen et al., 2009; Wu et al., 2010). The hairs that cover the rhizome were reportedly used for stuffing cushions (Chandra, 1970; van Steenis and Holttum, 1982) or as packing material (May, 1978).

Oldfield (1995) noted that tree ferns were used in the horticultural market as pot plants as well as for landscaping, and to act as substrate material for orchids.

**Viet Nam**

Distribution and Population Status: Nguyen et al. (2009) reported *C. barometz* to occur in the mountainous provinces in northern Viet Nam, including Cao Bang (Ha Quang, Nguyen Binh, Thach An districts); Lang Son (Huu Lung, Loc Binh dist.); Quang Ninh (Ba Che, Hoanh Bo, Van Don dist.); Lai Chau (Phong Tho, Than Uyen dist.); Lao Cai (Bat Xat, Muong Khuong, Bao Thang); Yen Bai (Mu Cang Chai, Tram Tau dist.); Dien Bien (Dien Bien Dong, Tua Chua, Tuan Giao dist.); Son La (Quynh Nhai, Song Ma, Thuan Chau, Mai Son dist.); Hoa Binh (Mai Chau, Da Bac, Tan Lac dist.); Tuyen Quang (Na Hang, Yen Son, Chiem Hoa dist.); Bac Can (Ba Be, Na Ri, Bach Thong dist.), Thai Nguyen (Phu Luong, Dai Tu, Dinh Hoa dist.); Phu Tho (Thanh Son, Tam Son dist.); Vinh Phuc (Tam Dao dist.); Than Hoa (Quan Hoa, Ba Thuoc, Cam Thuy dist.) and Nghe An (Ky Son, Tuong Duong, Con Cuong dist.). Furthermore, the species was reported to occur in southern Viet Nam in some high mountainous areas, including Ngoc linh (Dak Gley, Dak Ha, Tu Mo Rong, Kon Plong dist.) in Kon Tum province, Quang Nam province (Tra My, Tay Giang dist.); Chu Yang Sin in Dak Lak province and Bi Dup in Lam Dong province (Nguyen et al., 2009).

The species was reported to be common in Viet Nam, being particularly abundant in the Son La and Dien Bien provinces of northwest Viet Nam, and Kontum province in the Central Highlands (Nguyen et al., 2009). However, its distribution was said to be uneven (Nguyen et al., 2009). In the richest (unexploited) areas in Son La province, the maximum yield of fresh *C. barometz* rhizomes per 4 m² sample plot was reported to be about 12-16 kg, and in an area in Kontum province, the maximum yield of fresh rhizomes per 4 m² sample plot was reported to be 20-25 kg and the minimum was reported to be 10-12 kg (Nguyen et al., 2009). In contrast, based on a survey conducted in two communes (32 villages) in the Lai Chau province, northwestern Viet Nam, Lecup and Tu (2000) reported that the availability of wild *C. barometz* for trade purposes was limited, and the species was “almost depleted”. Similarly, in the Ben En National Park, the species was said to be threatened at the local level and it was stated that “the species is rare, and although local people can find it with special effort, the species will be endangered if collection continues” (Hoang et al., 2008).

It was stated that “population estimates for Viet Nam are lacking and reports on its abundance vary. It has been described as becoming rare in most range States owing to uncontrolled collection for the
Cibotium barometz

medicinal trade, but has also been described as common and even locally prolific in disturbed sites in Viet Nam” (CITES Secretariat, 2006b). Nguyen et al. (2009) considered “approximately thousands of tonnes” of C. barometz to be present in Viet Nam, with results from a recent survey indicating an estimated total stock of 10,000 tonnes of dried rhizome material.

C. barometz was reported to be occasionally an “important component” of the closed evergreen montane broad-leaved forests in the South Annamese floristic province, southern Viet Nam, along with other woody tree ferns (Averyanov et al., 2003). Typical habitats were reported to be wet, mountainous ravines (WHO, 1990) and valleys, forest edges, pine forests and steam banks at altitudes ranging from 300 to 1000 m (in the north) and 800 to 1500 m (in the south) (Nguyen et al., 2009).

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that within one year, they should conduct a preliminary inventory of the standing stock, establish estimates of sustainable off-take, establish a scientific monitoring system and establish a revised export quota (CITES Secretariat, 2006a). After being given an extended deadline to implement these recommendations (CITES Secretariat, 2008), Viet Nam was then removed from the Review of Significant Trade process, having provided the Secretariat with a copy of its non-detriment finding (CITES Secretariat, 2009).

In Viet Nam’s non-detriment finding for the species, management efforts were reported to be in place to “constrain the annual export from Viet Nam, as well as domestic use by medicinal factories”, in order to achieve sustainable use (Nguyen et al., 2009). Whilst the species was reported not to be included in any protected or threatened plant list regulations, the collection of *C. barometz* was reported to be prohibited in the National Parks and Nature Reserves (Nguyen et al., 2009). Outside of protected areas, it was reported that permits were needed for the collection of wild *C. barometz*; these are issued by the Forestry branches of each Province, who are also responsible for controlling localities and exploitation quantities (Nguyen et al., 2009). In addition, since 2001, export quotas of about 30-150 tonnes were reported to have been set by the Vietnamese CITES office (Nguyen et al., 2009).

Using data from field plot surveys and data gathered from other sources, the total biomass of rhizomes of *C. barometz* in Viet Nam was estimated to be about 10,000 tonnes (Nguyen et al., 2009). Based on this, the annual sustained yield was estimated to be around 400-500 tonnes, which accounts for 5% of the standing stock (Nguyen et al., 2009). Export quotas of 300-350 tonnes per year were suggested to be “reasonable within five years, from 2009” (Nguyen et al., 2009). However, it was noted that due to the wide and uneven distribution of *C. barometz* in Viet Nam, and the small number of sample plots, the field survey conducted to draw these estimates was “very limited” (Nguyen et al., 2009).

Collection of *C. barometz* rhizomes in Viet Nam was reported to be focused on a forest area in northwestern Viet Nam that was shortly to become a reservoir for the Son La hydroelectric project (Nguyen et al., 2009). Since 2006, the Forestry branches in Son La and Dien Bien provinces had reportedly issued permits for the collection of about 200-300 tonnes of *C. barometz* per year in the areas that were about to become a reservoir, and other areas outside the National Parks and Reserves (Nguyen et al., 2009). Between October 2008 and February 2009, an estimated 300 tonnes of fresh *C. barometz* rhizome were reportedly bought by a pharmaceutical company from the areas in Son La that were designated to become a reservoir (Nguyen et al., 2009).

Nguyen et al. (2009) suggested that to improve the management of the species, only plants with a rhizome weight of over 1.5 kg should be allowed for collection, and that there should be a minimum rotation period of 10 years. Artificial propagation and cultivation in suitable areas were seen as important potential tools to reduce pressure on the wild resources (Nguyen et al., 2009).

Whilst collection of the species was prohibited within National Parks and Nature Reserves (Nguyen et al., 2009), *C. barometz* was reportedly collected for medicinal purposes in the Bach Ma and Ben En National Parks (Thien An and Ziegler, 2001; Hoang et al., 2008). The control of unauthorized access to the Bach Ma National Park was reported to be very difficult to implement due to difficult accessibility of the area (Thien An and Ziegler, 2001).

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Cibotium barometz


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Flickingeria fimbriata

REVIEW OF CIBOTIUM BAROMETZ AND FLICKINGERIA FIMBRIATA FROM VIET NAM

ORCHIDACEAE

SPECIES: Flickingeria fimbriata

SYNONYMS: Desmotrichum fimbriatum, Dendrobium fimbriatum

COMMON NAMES:

RANGE STATES: China, India, Indonesia, Lao PDR, Malaysia, Philippines, Singapore (ex), Sri Lanka, Thailand, Viet Nam

RANGE STATE UNDER REVIEW: Viet Nam

IUCN RED LIST: Not evaluated

PREVIOUS EC OPINIONS:

TRADE PATTERNS:
Viet Nam published an annual export quota of 10 000 kg dry weight for F. fimbriata in 2009 and 2010.

There have never been any reported exports of F. fimbriata from Viet Nam, either to EU-27 or to the rest of the world, nor has there been any reported indirect trade into the EU of F. fimbriata originating in Viet Nam.

Global exports of F. fimbriata 1999-2008 have mainly come from the Philippines (48 live artificially-propagated specimens, reported by the importers only), with smaller quantities from Malaysia and Thailand. The only imports of F. fimbriata to the EU 1999-2009 were of 10 live artificially-propagated specimens from the Philippines (four specimens imported by Belgium and six by the French overseas region of Guadeloupe). There has been no trade in wild-sourced specimens of this species from any country since 1997.

CONSERVATION STATUS in range states
Flickingeria fimbriata is an epiphytic orchid (Smith, 1991; Wood et al., 1993; Kress et al., 2003; Averyanov et al., 2003b), although according to Beaman et al. (2001), it may also grow on the soil surface. It was recorded to grow on rocks and trees (Averyanov et al., 2003b), “often completely covering tree trunks and branches, particularly those overhanging rivers or the sea” (Comber, 1990). Its flowering was reported to last less than a day and be triggered by a drop in temperature (Beaman et al., 2001).

F. fimbriata was reported to be widespread in South-East Asia (Comber, 1990; Wood et al., 1993; Beaman et al., 2001). Its range was considered to include Peninsular Malaysia, Singapore, Sumatra, Java, Borneo, Sulawesi, Lesser Sunda Islands, The Philippines, Thailand, Viet Nam, China, Nicobar Islands and Andaman Islands (Agoo et al., 2003). It was also reported to occur in Laos (Inthakoun and Delang, 2008; Schuiteman et al., 2010) and India (Bose and Bhattacharjee, 1980). Yan Chong et al. (2009) reported it extinct in the wild in Singapore.
**Flickingeria fimbriata**

**Viet Nam**: *F. flickingeria* was reported to occur in the Vietnamese part of the South-Chinese floristic province (i.e. northeastern Viet Nam), as well as the North and South Indochinese and Central and South Annamese floristic provinces (Averyanov et al., 2003b).

*F. flickingeria* was found to occupy broad-leaved, mixed and coniferous montane and lowland forests in Viet Nam (Averyanov et al., 2003b). It was reported to grow on rocks and bases of large trees along montane streams and rivers, as well as in forest undergrowth (Averyanov et al., 2003b).

No specific information was located about the threats to *F. flickingeria* in Viet Nam. However, Averyanov et al. (2003a) noted that in addition to habitat loss and degradation, collection for trade was a significant threat to the Vietnamese orchid species. Averyanov et al. (2003a) reported that international orchid dealers and companies “encourage wide-scale collecting of the plants from the wild all over the country and have formed an extensive network of local dealers and collectors.” The exported plants were reported to move either directly or via Hong Kong and Taiwan to the markets in Japan, United States and Europe (Averyanov et al., 2003a). Averyanov et al. (2003a) reported that there is “absence of any real control of collecting of wild plants”, and that “the competition for new species between nurseries and growers involved in orchid breeding and the desire of many growers for wild-collected novelties support an illegal trade that still continues.”

*F. flickingeria* was also listed as a plant species used in traditional medicine (CITES Secretariat, 2002). The pseudo-bulbs were reported to be used for the treatment of asthma, bronchitis, fever, burning sensations, biliousness and blood diseases in India (Ganeshaiah et al., 2009).

*F. fimbriata* was not included in the list of protected plants of Viet Nam (Government of Viet Nam, 2006a).

**REFERENCES:**


Flickingeria fimbriata


