



NDF WORKSHOP CASE STUDIES
WG 2 – Perennials
CASE STUDY 1
Cibotium barometz
Country – **CHINA**
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NON-DETRIMENT FINDING FOR *CIBOTIUM BAROMETZ* IN CHINA

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I. BACKGROUND INFORMATION ON THE TAXA

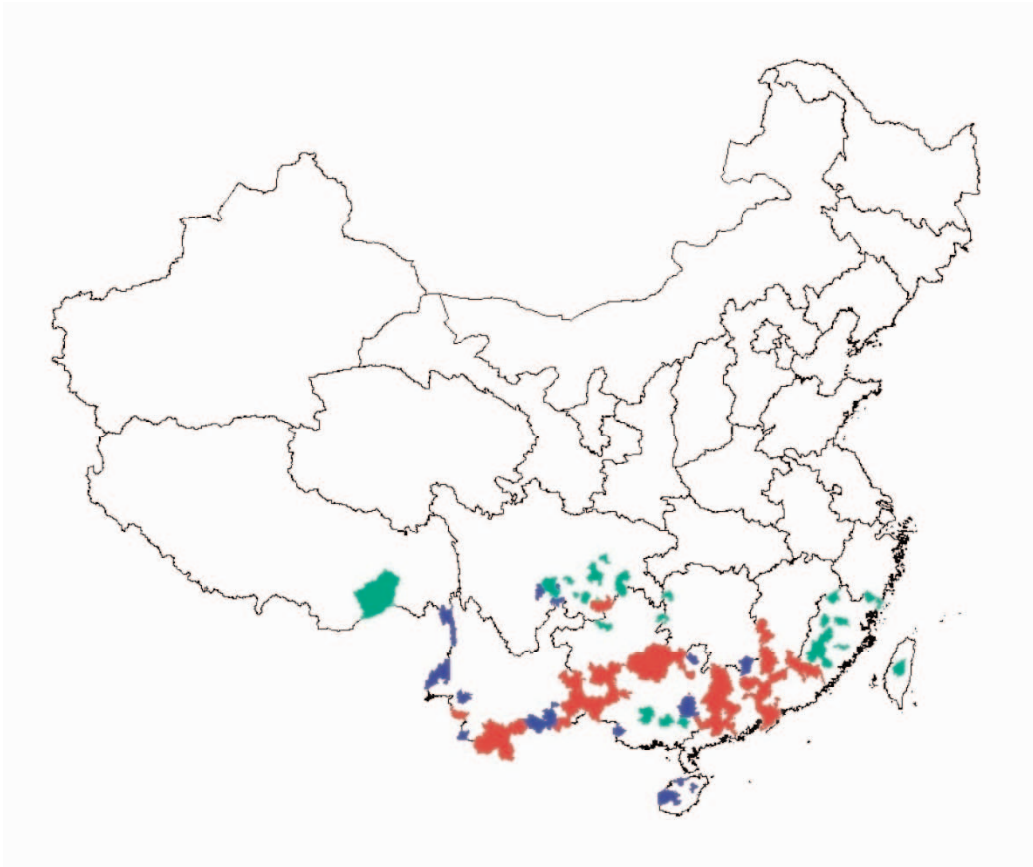
1. BIOLOGICAL DATA

1.1 Scientific and common names

Cibotium barometz, “Jinmao Gou” or “Jinmao Gouji” (Golden Hair Dog Fern, also called Scythian lamb), in Guangdong province it is called “Huanggoutou” (Yellow Dog’s Head Fern). It is placed in Cibotiaceae (Smith & al. 2006), formerly in Dicksoniaceae.

1.2 Distribution

Cibotium barometz is a tropical and subtropical plant distributed in China, NE India, Malaysia, Myanmar, Indonesia (from Java to Sumatra), Thailand, Vietnam, and Japan. In China, it is mainly distributed in southern and southwestern regions. Based on information from field observation and herbarium collections, we mapped all the regions where this species is found in China. In China, *C. barometz* is mainly distributed in Guangxi, Guizhou, Guangdong, Yunnan, Sichuan, Chongqing, Hainan, Xizang, Hunan, Zhejiang, and Jiangxi Provinces, and grows in a warm and humid environment, often in



Map 1. Distribution of *Cibotium barometz* in China

valley, forest edges and open places in forest in elevations ranging from (50-) 200-600 (-1300-1600) m. It usually grows with *Alsophila spinulosa*, *Diplazium chinense*, and *Dicranopteris pedata*. This species is an indicator of acid soil in tropical and subtropical areas, and thus is rare in limestone areas in Guangxi, Yunnan, and Guizhou Provinces. The current distribution of *Cibotium barometz* is rather fragmented (Map 1).

1.3 Biological characteristics

1.3.1 *Provide a summary of general biological and life history characteristics of the species*

Plants of *Cibotium barometz* produce large quantity of spores for sexual propagation. This tree fern forms large populations in valleys. It is observed that old, large rhizomes can produce lateral buds, which grow into a large rhizome. By this asexual propagation, the populations of this fern increase quickly, and are often very large and dense.

It takes several years for an individual plant to grow into a mature spore-bearing individual. This fern is rather tolerant to human disturbance

1.3.2 *Habitat types*

Cibotium barometz is a tropical and subtropical plant. In China, *Cibotium barometz* grows in a warm and humid environment, often in valley, forest edges and open places in forest, at elevation ranges from (50-) 200-600 (-1300-1600) m. It usually grows with *Alsophila spinulosa*, *Diplazium chinense*, and *Dicranopteris pedata*. It is an acid soil indicator species in tropical and subtropical areas, but rare in the limestone areas in Guangxi, Yunnan and Guizhou Province. The temperature and soil type are main factors which affect on the distribution of this species. The plants are generally found in elevations below 600 m, and prefer sunning and more or less open areas on acid soils.

1.3.3 *Role of the species in its ecosystem*

In the community dominated by *Cibotium barometz*, it plays an important role in the ecosystem. Normally it forms a very dense population with few individuals of other plant species.

1.4 **Population**

1.4.1 *Global Population size*

Unknown.

1.4.2 *Current global population trends*

increasing decreasing stable unknown

1.5 **Conservation status**

1.5.1 *Global conservation status (according to IUCN Red List)*

Critically endangered Near Threatened Endangered
 Least concern Vulnerable Data deficient

1.5.2 *National conservation status for the case study country*

Vulnerable

1.5.3 *Main threats within the case study country*

No Threats
 Habitat Loss/Degradation (human induced)

- Invasive alien species (directly affecting the species)
- Harvesting [hunting/gathering]
- Accidental mortality (e.g. Bycatch)
- Persecution (e.g. Pest control)
- Pollution (affecting habitat and/or species)
- Other _____
- Unknown

2. SPECIES MANAGEMENT WITHIN THE COUNTRY FOR WHICH CASE STUDY IS BEING PRESENTED

2.1 Management measures

2.1.1 Management history

Since 1997, Chinese CITES office has not allowed export trade of *Cibotium barometz* until a survey of the resources of this species is made.

2.1.2 Purpose of the management plan in place

To achieve sustainable use of the natural resources of this traditional Chinese herb medicine, and to ensure that the export will not be detrimental to the survival of this species in China.

2.1.3 General elements of the management plan

Constrain the annual export from China, as well as domestic use by medicinal factories.

2.1.4 Restoration or alleviation measures

Propagation by spores has been successful in experiment and hope to cultivate in the fields somewhere in South China area.

2.2 Monitoring system

2.2.1 Methods used to monitor harvest

No

2.2.2 Confidence in the use of monitoring

No

2.3 Legal framework and law enforcement: Provide details of national and international legislation relating to the conservation of the species

This species is listed in CITES Appendix II. Before 1997, there was no control to the export of *Cibotium barometz* in China, it was exported

to South Korea, USA and Canada with more than 500 tons in five years from 1993-1997. From 1998 to 2000, CITES office in Beijing did not issue any permits of export until a survey of the natural resources of *Cibotium* completed (Zhang & al. 2001, 2002). Since 2001, under the guidance of a survey of the natural resources (Jia & Zhang 2001), a quota of 130 tones is permitted to export annually from China. However, the export amount decreases gradually, with only a few thousands of kilograms of export during recent years.

3. UTILIZATION AND TRADE FOR RANGE STATE FOR WHICH CASE STUDY IS BEING PRESENTED

3.1 Type of use (origin) and destinations (purposes)

Cibotium barometz is well valued as a garden plant or a medicinal herb. It is believed that this plant replenishes liver and kidney, strengthens bones and muscles, expels and eases the joint and for deficiency of liver and kidney manifested as chronic rheumatism, backache, flaccidity and immovability of lower extremities, and frequent enuresis (Yao 1996, Ou 1992). Hairs on the rhizome of this plant have long been used as a styptic for bleeding wounds in China and Malaysia (Holtum 1963). Up to now, there is no artificial cultivation of *Cibotium barometz* in China; all the materials used are collected from wild populations

3.2 Harvest

3.2.1 Harvesting regime

The rhizome of *Cibotium barometz* can be dug up throughout the year, but late autumn and winter are the best time to collect it. After the fibrous roots and silky hairs have been removed, the rhizomes are cleaned with water and dried in the sun. Because the rhizomes become too solid to cut when they are dried, it is more often to cut them into slices when they are fresh, and the slices are called raw "Gouji" slices. The rhizomes can also be boiled or steamed in water, and then dried and cut into slices which are called cooked "Gouji" slices. Normally the mature plants with large rhizomes were collected, leaving small plants survival. Only the populations outside nature reserves (including national and provincial nature reserves and forest parks) can be collected under the control of local governments and forestry offices. According to our survey, a rather large proportion of the natural populations of *Cibotium barometz* are located in protected areas.

3.2.2 Harvest management/control

Only the populations outside nature reserves can be collected according to regulations of local governments and forest offices.

3.3 Legal and illegal trade levels: To the extent possible, quantify the level of legal and illegal use nationally and export and describe its nature

So far, no illegal trade has been found. The dry sliced rhizomes of *Cibotium* called "Gouji" mainly enter the domestic markets for trade, and the largest consumers are factories for producing pills of "Zhuangyao Bushen Wan", a medicine which is helpful to maintaining the function of kidney. In addition to the above-mentioned markets, some "Gouji" is used by individuals and for export. The main import countries and regions include South Korea, the United States, Hong Kong, and Canada. Since 1997, Chinese CITES office decided that export trade should not be allowed until a survey of the resources of *Cibotium barometz* is made.

II. NON-DETRIMENTAL FINDING PROCEDURE (NDFs)

Provide detailed information on the procedure used to make the non-detriment finding for the species evaluated

1. Is the methodology used based on the IUCN checklist for NDFs?

yes no

2. Criteria, parameters and/or indicators used

Field plot-survey method was used to estimate the deposit of natural resources of the rhizomes of *Cibotium barometz*. We estimated the biomass of rhizomes in different provinces and districts. For most rhizome-harvested plants, the annual sustained yield is estimated at about 10% of the standing stocks.

3. Main sources of data, including field evaluation or sampling methodologies and analysis used

It is obvious that the distribution of *Cibotium baometz* in China is uneven. We selected sample plots from several provinces and in each province a few counties were selected. By field plot-survey method, combined with experience of local people, we can estimate the biomass of rhizomes of *Cibotium barometz* in provinces and districts. We then made rather

conservative estimations of the quantity of dry rhizome "Gouji" deposits in the major distribution provinces and districts. According to our estimation, there are about 391,400 tons of deposits of "Gouji" in China, mainly distributed in Guangdong, Guangxi, Yunnan, Guizhou, and Sichuan. According to the richness of "Gouji" deposits in different counties, three classes are distinguished. On the distribution map (Map 1), the red color areas represent the highest deposits, blue areas the medium, and green areas represent the lowest deposits. Areas with the highest deposits of "Gouji" are in western Guangdong, northern Guangxi and southern Yunnan. There are some other areas where *C. barometz* is found growing but populations are rather small, such as Xinning and Jianghua counties in Hunan Province, Taishun and Pingyang counties in Zhejiang Province. Deposits of "Gouji" in Medog of Xizang, and Taiwan Province are not estimated because of lack of information.

4. Evaluation of data quantity and quality for the assessment

The estimated deposit of natural resources might not be very accurate because of the difficulty of field survey and the limitation of sampled populations in its vast distribution areas. Also, our field studies were conducted between 1997-1998, and no data were collected afterwards. From our field trips in recent years, we found the natural vegetation are getting better and better in most parts of China because of the forest restoration project. For most rhizome-harvestable plants, the annual sustained yield is estimated at about 10% of the standing stocks. The export quota of 130 tons per year is reasonable.

5. Main problems, challenges or difficulties found on the elaboration of NDF

The plants are widely and unevenly distributed throughout China south of the Yangtze River, our field survey is still very limited. It is hoped that international and national agencies will help with investigation of artificial cultivation, artificially promoting natural regeneration, and new medicinal products in order to reduce the pressure on wild resources of this much exploited species.

6. Recommendations

In future, export of final products rather than raw materials should be encouraged.

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