

Distribution and conservation strategy of eight threatened gymnosperm species in China

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Outline of threatened gymnosperm species in China

There are 226 species (including varieties), respectively 33 genera of 10 families in Chinese gymnosperm, 80 percent of which are threatened due to a variety of factors (Wang & Xie, 2004), 63 of which are listed as state protected plants in China (Fu & Jin, 1992). Many Chinese botanists can point to their achievements in protecting these rare and endangered plants, such as: *Metasequoia glyptostroboides*, *Cathaya argyrophylla*, *Ginkgo biloba*, and so on. Here, eight threatened species of gymnosperm are selected for my topic.

Taiwania cryptomerioides Hayata

Status: State first-class protected plant

Distribution: Hubei (Lichuan) 82 (10), Guizhou (Leigong shan) , Fujian 22 , Sichuan (Youyang) , Taiwan (Zhongyangshan), Xizang (Zayu), Yunnan.

Altitude: 300-1350m



Why is it rare? The number of natural occurring trees of the species has decreased drastically due to logging for their straight trunks of quality wood. Poor regeneration is another factor.

Conservation measures: Some nature reserves have been established in their natural distribution regions. They were mainly propagated by seed or cutting, and introduced many places in south of China.

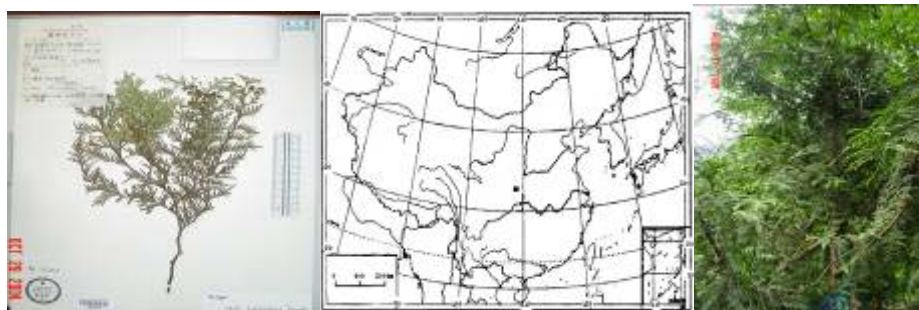
Suggestion: Investigate their genetic background.

Thuja sutchuenensis Franch.

Status: Critically endangered, rather rare.

Distribution: Chengkou county, NE Chongqing. *Thuja sutchuenensis* was rediscovered in 1999 after an announcement that this species was possibly extinct by IUCN in 1998. Only 200 individuals from three populations

Altitude: 800–2100m.



Why is it rare? *Thuja sutchuenensis* naturally occurs at low density, and another factor is their poor regeneration. Its population is a senescent type. Its seed has a low germination, and seedlings and saplings have high mortality.

Conservation measures: Dabashan national nature reserve has been established in their natural distribution regions. It has been successfully propagated by seed. Recent studies of this species are mainly ecological investigation.

Suggestion: Investigate their genetic background, and study its propagation method, protect its natural habitat.

Abies beshanzuensis* M.H.Wu var. *beshanzuensis

Status: Endangered species, only three individuals.

Distribution: Mt. Baishanzu, Qingyuan county, Zhejiang province.

Altitude: 1700m.



Why is it rare? *Abies beshanzuensis* was only discovered 1970s when only 6 trees were found. Seed production is low.

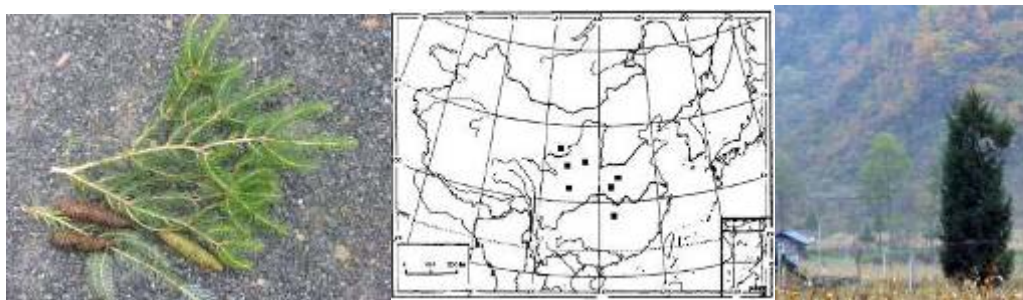
Conservation measures: A nature reserves have been established in their natural distribution region. It has been propagated by graft (grafting this species onto the stocks of *Abies firma*).

Suggestion: Study its propagation method, protect its natural habitat.

***Picea neveitchii* Mast.**

Status: Endangered species, state second-class protected plant.

Distribution: Scatter in Qinling range, Fengxian county, Foping and Taibai, Shaanxi province; Shennonjia, Xingshan and Badong, Hubei province; Wutai Shan, Shanxi province; Neixiang county, Hunan province; Sichuan province. Altitude: 1300–2200m.



Why is it rare? The species is often logged for its straight trunks of quality wood. The original vegetation has been destroyed. As a result the number of naturally occurring trees has decreased drastically. Poor regeneration is another factor.

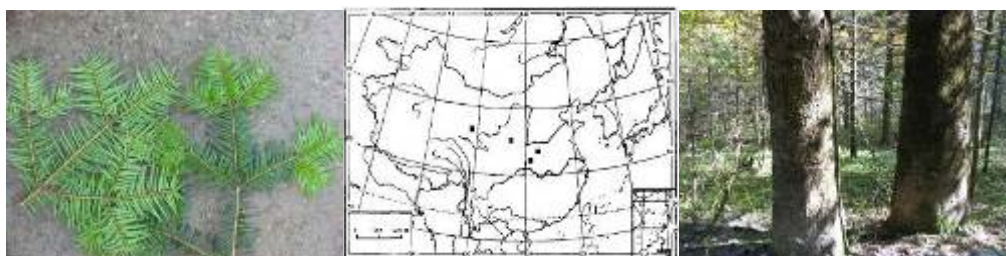
Conservation measures: Some nature reserves have been established in their natural distribution regions. Few study data have been obtained.

Suggestion: Investigate its genetic background, and study its propagation method, protect its natural habitat. The species is suitable to widespread cultivation- it is very attractive.

***Abies chensiensis* Tiegh.**

Status: Vulnerable species, State third-class protected plant in China.

Distribution: Scatter in Foping and Taibai, Shaanxi province; Shennongjia, Xingshan and Badong, Hubei province; Southern of Gansu province; North of Sichuan province (Wang et al., 1995). Altitude: 1900-3000m.



Why is it rare? The number of naturally occurring trees has decreased drastically due to logging for their straight trunks of quality wood in past 50 years. Its habitat has been fragmented because of vegetation destruction. Although seed has high germination rate, regeneration is very poor.

Conservation measures: Some nature reserves have been established in their natural distribution regions.

Suggestion: Protect its natural habitat. Encourage artificial propagation. The species is suitable to widespread cultivation.

***Amentotaxus argotaenia* (Hance) Pilger**

Status: Vulnerable, State third-class protected plant.

Distribution: *Amentotaxus argotaenia* is wide but scattered distribution in south of Yangtze river in China. Altitude: 400-2200m.



Why is it rare? *Amentotaxus argotaenia* is a dioecious plant. The number of naturally occurring trees has decreased drastically because of habitat destruction and fragmentation, seed dormancy and poor regeneration.

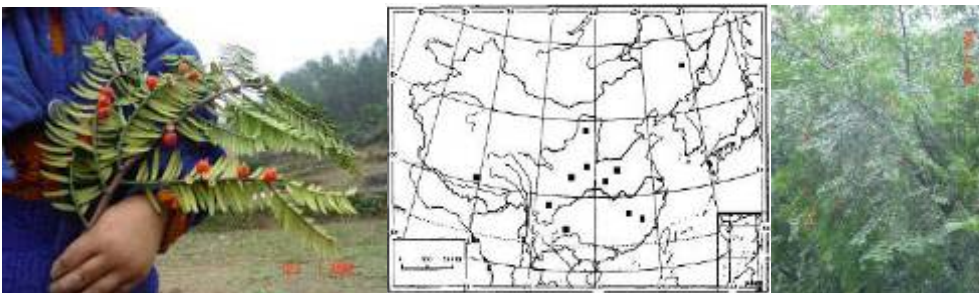
Conservation measures: Some nature reserves have been established in their natural distribution regions.

Suggestion: It is a potential horticultural plant. Protect its natural habitat. Encourage artificial propagation. Enlarged breeding by tissue culture. The species is suitable to widespread cultivation.

Taxus spp.

Status: *Taxus spp.* Endangered, State first-class protected plant. Five species in China, that is: *Taxus cuspidate* Sieb. et Zucc.; *Taxus walichiana* Zucc.; *Taxus yunnanensis* Cheng et L.K.Fu; *Taxus chinensis* var. *mairei* (Lemee et Levl.) Cheng et L.K.Fu; *Taxus chinensis* (Pilg) Rehd. (Wang & Xie, 2004)

Distribution: wide but scattered distribution in the montane zones of China. Altitude: 500-2200m.



Why is it rare? *Taxus spp.* are collected greatly for medicine and horticulture. The number of naturally occurring trees has decreased drastically because its original vegetation has been destroyed, added to fragmented habitat, seed dormancy and poor regeneration.

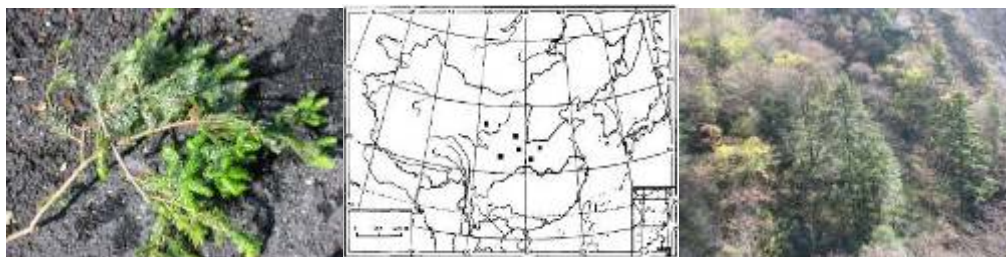
Conservation measures: Many nature reserves have been established in natural distribution areas..

Suggestion: It is a potential horticultural and medicinal plant. Protect its natural habitat. Encourage artificial propagation. Enlarged breeding by tissue culture. The species is suitable to widespread cultivation.

Picea brachytyla* Franch. Pritz. var. *brachytyla

Status: Vulnerable, State third-class protected plant, endemic to China.

Distribution: Mts. Qinling and Mts. Daba. Wide but scattered. Altitude: 1400-3500m.



Why is it rare? The number of naturally occurring trees has decreased drastically due to logging for their straight trunks of quality wood. Its original vegetation had been destroyed and habitat fragmented. Seed has dormancy. Regeneration is very poor.

Conservation measures: Some nature reserves have been established in their natural distribution regions.

Suggestion: It is a valued tree for high quality wood. Protect its natural habitat. Strengthen study on its propagation. The species is suitable to widespread cultivation.

References

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