

Pterocarya tonkinensis, Tonkin wingnut

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Fagales	Juglandaceae

Taxon Name: *Pterocarya tonkinensis* (Franch.) Dode

Synonym(s):

- *Pterocarya stenoptera* C.DC. var. *tonkinensis* Franch.

Common Name(s):

- English: Tonkin wingnut

Taxonomic Notes:

Pterocarya tonkinensis is ecologically and morphologically very close to *Pterocarya stenoptera* and could possibly be treated as a subspecies (Kozłowski *et al.* 2018). Further genetic analyses are needed for the whole genus *Pterocarya*.

Assessment Information

Red List Category & Criteria: Vulnerable C2a(i) [ver 3.1](#)

Year Published: 2019

Date Assessed: February 15, 2019

Justification:

Pterocarya tonkinensis is present in China, Viet Nam and Lao PDR. The species is restricted to the vicinity of rivers and streams in tropical monsoon forests. The general destruction of its habitat for human activities and logging of forested corridors along streams have already impacted the species and artificialization of river banks and construction of dams still represent severe threats for the future. It is estimated that the population is about 3,000 mature individuals, with no subpopulation exceeding 1,000 individuals, suffers from a continuing decline. Therefore the species is assessed as Vulnerable C2a(i).

Geographic Range

Range Description:

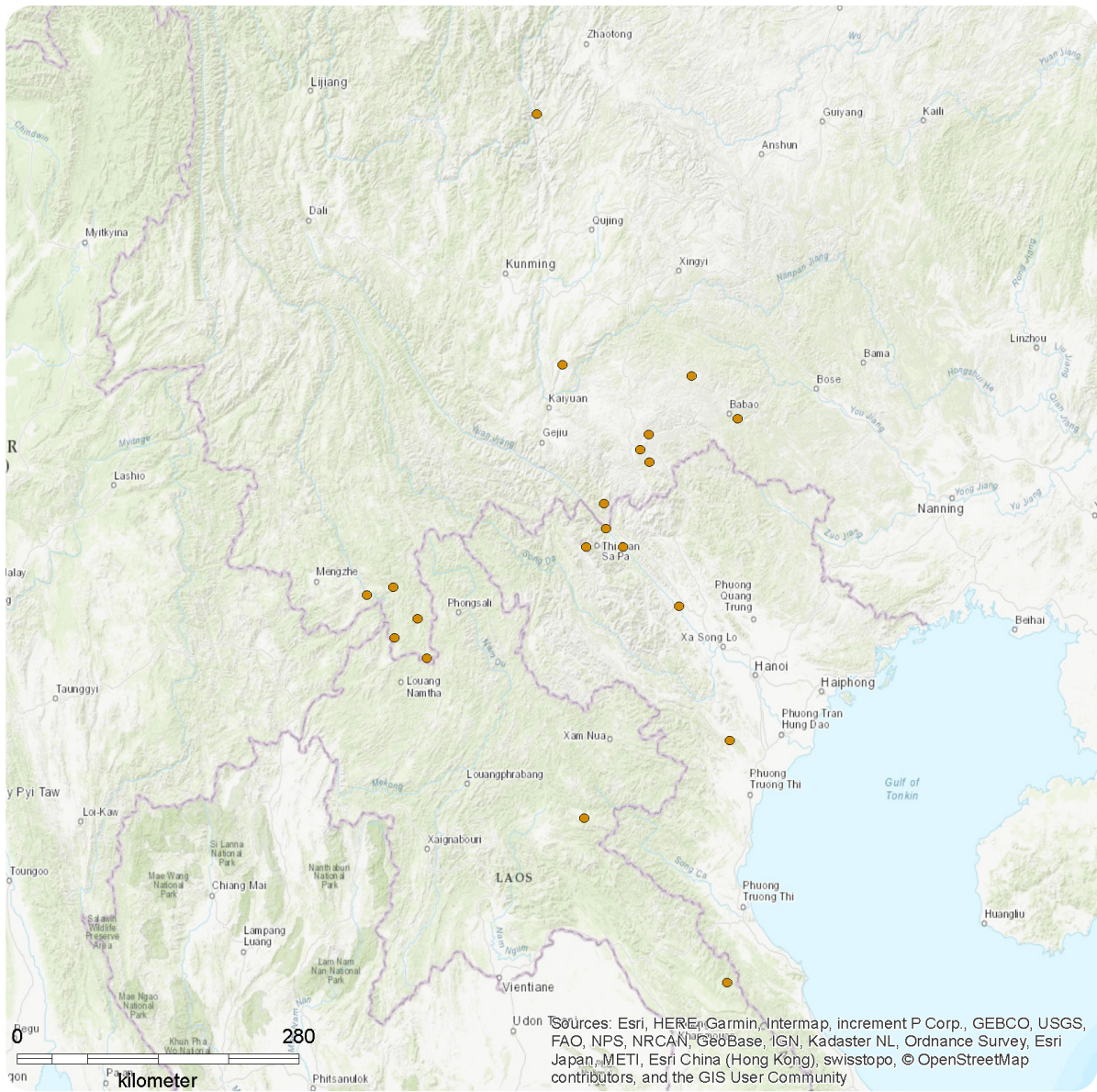
Pterocarya tonkinensis is reported from Southern China in Yunnan, from Northern and Central Viet Nam and Lao PDR (Zheng and Raven 2003, Fang *et al.* 2003, Kozłowski *et al.* 2018, Chinese Virtual Herbarium (CVH)). Further explorations are necessary for China and Viet Nam to identify the exact distribution of the species from its close relative *Pterocarya stenoptera*. It exhibits the smallest distribution area of the genus *Pterocarya* with an estimated extent of occurrence (EEO) of 262,358 km². The area of occupancy (AOO) of the species is also very low and estimated to be around 80 km².

Country Occurrence:

Native: China (Yunnan); Lao People's Democratic Republic; Viet Nam

Distribution Map

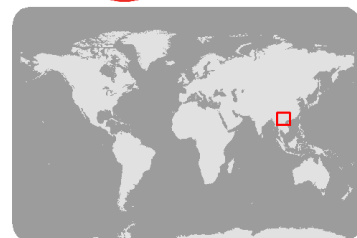
Pterocarya tonkinensis



Range

- Extant (resident)

Compiled by:
GTA



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.



Population

The total population is supposed to be decreasing, due to the destruction and alteration of its habitat (Kozłowski *et al.* 2018). Unfortunately, few reliable indications are available concerning the current state of the different subpopulations. This is particularly true in Lao PDR and at the border between China and Viet Nam. Natural stands are often included in protected areas (e.g. Cuc Phuong National Park and Pu Mat National Park in Viet Nam or Nakai-Nam Theun National Biodiversity Conservation Area in Lao PDR) because riparian habitats have been largely destroyed or altered by human activities and only remain in protected areas. The total population size is estimated to be around 3,000 mature individuals in 20 known subpopulations.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

Pterocarya tonkinensis is a large tree which is an element of the tropical monsoon forests, but the species is restricted to the vicinity of small to medium-sized riverbanks. The species is the most tropical species of the genus and reaches its lowest altitude in Lao PDR, in the National Biodiversity Conservation Area in Nakai-Nam. The species is a fast-growing and flood-tolerant tree and can form monospecific communities in riparian habitats (Kozłowski *et al.* 2018).

Systems: Terrestrial

Use and Trade

Pterocarya tonkinensis still represents an important timber tree for local communities. The toxicity of the species has been used in Viet Nam, where local people used to crush leaves and branches of the species to poison fishes (Kozłowski *et al.* 2018).

Threats (see Appendix for additional information)

The main threats to *Pterocarya tonkinensis* are the destruction and artificialization of river banks for human activities (e.g. agriculture and urbanization). Furthermore, the species is still an important timber tree for local communities in many regions (Kozłowski *et al.* 2018). Natural regeneration of the species via seeds seems to be low and few young seedlings are generally present in the field. Any alteration of the water level and absence of flooding episodes could also represent a threat to the species, unfortunately those changes are often necessary, when industrializing rural villages and communities. The construction of dams and containment of small rivers will likely impact strongly the last remaining subpopulations situated outside protected reserves. There are only 20 known subpopulations for this species, but it is possible that other stands still exist as the distribution range of the species has not yet been fully explored by botanists. It is also possible that some stands have been determined as *P. stenoptera* could be in fact *P. tonkinensis*.

Conservation Actions (see Appendix for additional information)

The species is not common in cultivation in botanic gardens and public parks. The species is held in at least 10 collections from across the globe (BGCI 2019). Field explorations are still necessary to precise the distribution of the species, especially in Lao PDR and at the border between China and Viet Nam. It is also urgent to start monitoring the remaining stands of the species. An *ex situ* conservation program

should also be initiated, to preserve the genetic diversity of the species in botanic gardens and arboreta in the countries of origin of the species.

Credits

Assessor(s): Kozłowski, G., Song, Y. & Bétrisey, S.

Reviewer(s): Harvey-Brown, Y. & Rivers, M.C.

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External Resources

For [Images and External Links to Additional Information](#), please see the [Red List website](#).

Appendix

Habitats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.6. Forest - Subtropical/Tropical Moist Lowland	-	Suitable	-

Plant Growth Forms

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Plant Growth Forms
Tree - large

Threats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.3. Tourism & recreation areas	Ongoing	-	Negligible declines	-
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.3. Agro-industry farming	Ongoing	-	Negligible declines	-
2. Agriculture & aquaculture -> 2.2. Wood & pulp plantations -> 2.2.2. Agro-industry plantations	Ongoing	-	Negligible declines	-
4. Transportation & service corridors -> 4.1. Roads & railroads	Ongoing	-	Slow, significant declines	-
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.1. Intentional use: (subsistence/small scale) [harvest]	Ongoing	-	Negligible declines	-
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.10. Large dams	Future	-	Rapid declines	-
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.9. Small dams	Future	-	Rapid declines	-

Conservation Actions in Place

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Actions in Place
In-Place Species Management

Conservation Actions in Place

Subject to ex-situ conservation: Yes

Conservation Actions Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Actions Needed

3. Species management -> 3.4. Ex-situ conservation -> 3.4.1. Captive breeding/artificial propagation
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3. Species management -> 3.4. Ex-situ conservation -> 3.4.2. Genome resource bank

5. Law & policy -> 5.1. Legislation -> 5.1.2. National level
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Additional Data Fields

Distribution

Estimated area of occupancy (AOO) (km ²): 80
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Estimated extent of occurrence (EOO) (km ²): 262358

Lower elevation limit (m): 100

Upper elevation limit (m): 700

Population

Number of mature individuals: 3000

Continuing decline of mature individuals: Yes

Habitats and Ecology

Generation Length (years): 20-30

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