**Pterocarya macroptera**, Large-winged wingnut

Assessment by: Song, Y., Bétrisey, S. & Kozlowski, G.

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Taxonomy

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plantae</td>
<td>Tracheophyta</td>
<td>Magnoliopsida</td>
<td>Fagales</td>
<td>Juglandaceae</td>
</tr>
</tbody>
</table>

**Taxon Name:** *Pterocarya macroptera* Batalin

**Common Name(s):**
- English: Large-winged wingnut

**Taxonomic Notes:**
Three varieties have traditionally been recognized: *Pterocarya macroptera* var. *macroptera*, var. *insignis* and var. *delavayi*. Thus, morphological differences between varieties are very thin, so the same subpopulation can be alternately described as a different subspecies according to the collectors. The validity of these subdivisions still need further study.

**Assessment Information**

**Red List Category & Criteria:** Vulnerable C2a(i) ver 3.1

**Year Published:** 2019

**Date Assessed:** January 16, 2019

**Justification:**
*Pterocarya macroptera* is an endemic tree of China growing in riparian habitats in mountainous regions. The area of occupancy (AOO) is low and estimated to be around 516 km². The total number of subpopulations is estimated to be approximately 120 and the total number of mature individuals is 5,000-8,000. Alteration and destruction of its habitat still represents an important threat to the species and based on the fact that no known subpopulations exceed 1,000 individuals, the species is assessed as Vulnerable under criterion C2a(i).

**Geographic Range**

**Range Description:**
*Pterocarya macroptera* is an endemic tree of China, present in South Eastern Gansu, West Hubei, South Shaanxi, West and South Western Sichuan, North Western Yunnan and Zhejiang provinces (Zheng and Raven 2003, Fang et al. 2003, Chinese Virtual Herbarium (CVH)). The distribution of the different varieties seems to differ slightly with *P. macroptera* var. *macroptera* predominantly in the North, *P. macroptera* var. *insignis* growing further South and East, and *P. macroptera* var. *delavayi* situated in Western China (Kozlowski et al. 2018). The centre of distribution of the species is located in the mountainous areas surrounding the Sichuan plains. Only a few isolated and restricted subpopulations are present in the east (Zhejiang province) and the west (Yunnan province). It has an estimated extent of occurrence (EOO) of 1,324,349 km². The area of occupancy (AOO) is low and estimated to be around 516 km².
Country Occurrence:

Native: China (Chongqing, Gansu, Guizhou, Hubei, Shaanxi, Sichuan, Yunnan, Zhejiang)
Distribution Map

Pterocarya macroptera

Range

- Extant (resident)

Compiled by:

GTA

Sources: Eiri, HERE, Garmin, Infoterm, incspeaker Corp., GEBCO, USGS, FAO, EPS, NCICN, GeoBase, IGN, Kotsaster H., Ordnance Survey, ESRI, Japan, METI, Eiri China (Hong Kong), sweishopo, © OpenStreetMap contributors, and the GIS User Community.

http://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T66816136A66816223.en
Population
The total population of *Pterocarya macroptera* is estimated to be between 5,000 to 8,000 mature trees in ca. 120 localities. However, the total number of localities could differ from this estimation, because a large part of the distribution range of the species has not been fully explored by botanists and some historical localities could have already disappeared. Recent explorations show that subpopulations comprise of no more than 50 individual trees and that the species seems to reproduce mainly through cloning, with fruits being often sterile (Kozlowski et al. 2018). Based on recent field explorations (Kozlowski et al. 2018) the population size of the different stands are very small, except for one important subpopulation in Shennogjia, Hubei.

**Current Population Trend:** Decreasing

Habitat and Ecology *(see Appendix for additional information)*

*Pterocarya macroptera* is a large tree which grows in wet environments along mountain streams, river valleys and slopes between 1,100 and 3,500 m asl (Kozlowski et al. 2018). The species ranges from subtropical to a temperate climate and reaches the highest elevation compared to the other species of the genus (Kozlowski et al. 2018).

**Systems:** Terrestrial

Use and Trade
This species is sometimes logged for its timber by local people.

Threats *(see Appendix for additional information)*
The main threats to *Pterocarya macroptera* include the destruction or artificialization of riparian habitats (Kozlowski et al. 2018). However, compared to the other species of the genus occupying the same type of environment (*P. hupehensis*, *P. stenoptera* and *P. tonkinensis*), *P. macroptera* seems less affected by human activities, as the species grows generally at higher elevations in more remote areas. Generally, forests and riparian habitats located in deep mountain valleys at higher elevations face less damage and are presently still well preserved (Kozlowski et al. 2018). This is particularly true in mountainous areas in the centre of China, but it could slightly differ in other regions of the country, such as Yunnan and Guizhou provinces where afforestation and agriculture by local communities are frequent even in higher altitudes. Another threat for the long term conservation of this tree is the low production of seeds combined with the low survival rate of the young seedlings.

Conservation Actions *(see Appendix for additional information)*
The three infra-specific varieties were all assessed as Least Concern in China (Red List of Chinese Plants 2019). Field explorations are still necessary to confirm ancient indications and to estimate more precisely the total number of individuals. The species is not very common in cultivation and is reported to have at least 19 *ex situ* collections worldwide (BGCI PlantSearch 2019). An *ex situ* conservation program should be initiated to protect the genetic diversity of the species. Afforestation projects in mountainous degraded riparian habitats could play an important role to promote the species.

Credits

http://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T66816136A66816223.en
Bibliography


Citation


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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)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Season</th>
<th>Suitability</th>
<th>Major Importance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Forest -&gt; 1.4. Forest - Temperate</td>
<td>-</td>
<td>Suitable</td>
<td>-</td>
</tr>
</tbody>
</table>

Plant Growth Forms
(http://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
<th>Plant Growth Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree - large</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Threat</th>
<th>Timing</th>
<th>Scope</th>
<th>Severity</th>
<th>Impact Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Residential &amp; commercial development -&gt; 1.3. Tourism &amp; recreation areas</td>
<td>Ongoing</td>
<td>-</td>
<td>Negligible declines</td>
<td>-</td>
</tr>
<tr>
<td>2. Agriculture &amp; aquaculture -&gt; 2.1. Annual &amp; perennial non-timber crops -&gt; 2.1.3. Agro-industry farming</td>
<td>Ongoing</td>
<td>-</td>
<td>Negligible declines</td>
<td>-</td>
</tr>
<tr>
<td>2. Agriculture &amp; aquaculture -&gt; 2.2. Wood &amp; pulp plantations -&gt; 2.2.2. Agro-industry plantations</td>
<td>Ongoing</td>
<td>-</td>
<td>Negligible declines</td>
<td>-</td>
</tr>
<tr>
<td>4. Transportation &amp; service corridors -&gt; 4.1. Roads &amp; railroads</td>
<td>Future</td>
<td>-</td>
<td>Negligible declines</td>
<td>-</td>
</tr>
<tr>
<td>7. Natural system modifications -&gt; 7.2. Dams &amp; water management/use -&gt; 7.2.9. Small dams</td>
<td>Future</td>
<td>-</td>
<td>Rapid declines</td>
<td>-</td>
</tr>
</tbody>
</table>

Conservation Actions in Place
(http://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
<th>Conservation Actions in Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Place Species Management</td>
</tr>
<tr>
<td>Subject to ex-situ conservation: Yes</td>
</tr>
</tbody>
</table>

Conservation Actions Needed
(http://www.iucnredlist.org/technical-documents/classification-schemes)
### Conservation Actions Needed

3. Species management -> 3.2. Species recovery
3. Species management -> 3.3. Species re-introduction -> 3.3.1. Reintroduction

### Research Needed

(\[https://www.iucnredlist.org/technical-documents/classification-schemes\])

<table>
<thead>
<tr>
<th>Research Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Research -&gt; 1.2. Population size, distribution &amp; trends</td>
</tr>
</tbody>
</table>

### Additional Data Fields

<table>
<thead>
<tr>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated area of occupancy (AOO) (km²): 516</td>
</tr>
<tr>
<td>Estimated extent of occurrence (EOO) (km²): 1324349</td>
</tr>
<tr>
<td>Lower elevation limit (m): 1100</td>
</tr>
<tr>
<td>Upper elevation limit (m): 3500</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of mature individuals: 5000-8000</td>
</tr>
<tr>
<td>Continuing decline of mature individuals: Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Habitats and Ecology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation Length (years): 20-30</td>
</tr>
</tbody>
</table>
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