

Pterocarya fraxinifolia, Caucasian wingnut

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Fagales	Juglandaceae

Taxon Name: *Pterocarya fraxinifolia* (Poir.) Spach

Synonym(s):

- *Juglans fraxinifolia* Poir.
- *Pterocarya pterocarpa* (Michx) Kunth ex I.Iljinsk
- *Pterocarya pterocarpa* Kunth ex I.Iljinsk.

Common Name(s):

- English: Caucasian wingnut

Assessment Information

Red List Category & Criteria: Vulnerable A2c+4c [ver 3.1](#)

Year Published: 2019

Date Assessed: March 29, 2019

Justification:

Pterocarya fraxinifolia is a tree located in Turkey, Iran, Azerbaijan and Georgia and grows in a riparian environment. The species could under good conditions covers important portions of alluvial plains, but due to heavy destruction and degradation of its habitat, the species is mostly restricted to the direct vicinity of rivers and streams. The population reduction is suspected to be at least 30% over the last three generations (60–90 years), with most of the decline in the last century, and the species is still under threat by local agriculture and hydrological modifications. Large parts of its habitat have been irreversibly destroyed or altered across its entire range. Therefore, the species is assessed as Vulnerable.

Geographic Range

Range Description:

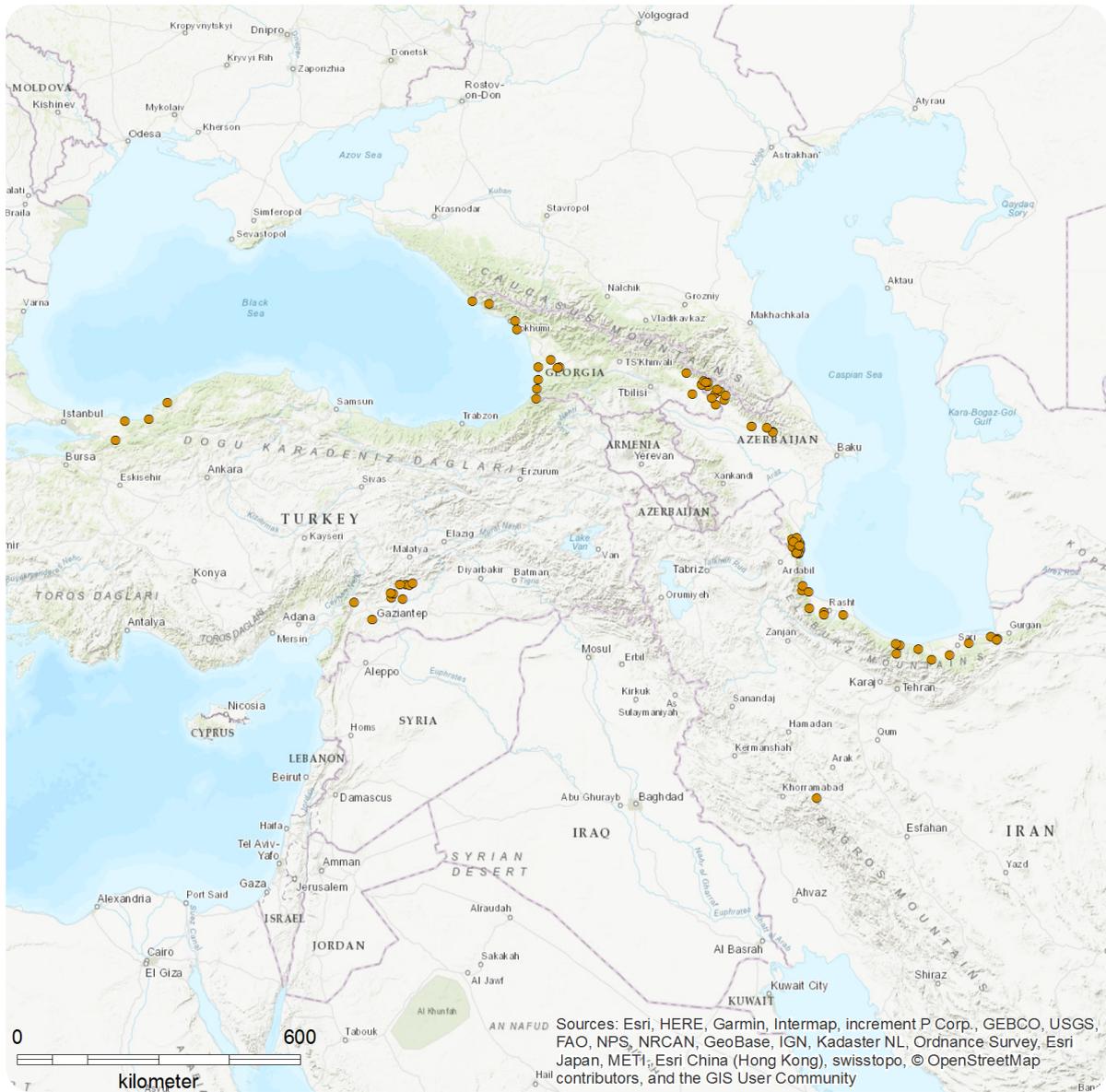
Natural subpopulations of *Pterocarya fraxinifolia* can be found in Turkey, Georgia, Azerbaijan and Iran (Browicz 1982). It is also possible that the species could grow in Russia, as the species is present in Georgia very close to the Russian border. Its current distribution includes the eastern shore of the Black Sea (Georgia), the Talysh Mountains and the southern side of the Greater Caucasus (Azerbaijan) and the southern shore of the Caspian Sea along the Elburz Mountains (Iran). Outside those regions, isolated and fragmented subpopulations exist in Turkey and the Zagros Mountains (Iran) (Akhani and Salimian 2003, Kozłowski *et al.* 2018, Mostajeran *et al.* 2017). The species has an estimated extent of occurrence (EOO) of over 1,160,616 km².

Country Occurrence:

Native: Azerbaijan; Georgia; Iran, Islamic Republic of; Turkey

Distribution Map

Pterocarya fraxinifolia



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 of *Pterocarya fraxinifolia* is difficult to estimate but certainly exceeds 10,000 individuals. The species is nowadays rare in Georgia, with the majority of subpopulations restricted to the strict perimeter of the river banks and the stands are highly fragmented and composed of a few dozen individuals. The only known important subpopulation can be found in Lapankuri, where the species is still abundant and covers a large perimeter of an alluvial plain (Kozłowski *et al.* 2018). The vegetation in riparian habitat is largely degraded by human impacts and dams (Akhani *et al.* 2010). In Iran, the species is present in riverine and valleys forests, as well as alluvial and lowland deciduous forests which have been almost entirely replaced by cultural landscapes. Only a few small sites still exist in some protected forests. The total number of mature individuals is difficult to estimate but exceeds 10,000 mature individuals. The current population trend is supposed to be slightly decreasing in its entire range.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

Pterocarya fraxinifolia is a fast-growing tree restricted to the vicinity of rivers between 0 to 800 m asl, exceptionally 1,730 m asl in the Zagros Mountains. The species generally forms a corridor along rivers and rarely extends to alluvial plains. The species grows in wet conditions and can tolerate flooding for short periods through the year.

Systems: Terrestrial

Use and Trade

In Iran, the leaves of this species are used as an anaesthetic agent for catching fish, dyeing and as an antifungal agent (Hadjmohammadi and Kamyar 2006). The species is cultivated in gardens for ornamental value. This species is used for timber by local people.

Threats (see Appendix for additional information)

The main threats to *Pterocarya fraxinifolia* include the destruction of its habitat, as well as logging and cutting by local people. Riparian forests in low altitude have already been severely cut in the past or converted into grassland or monospecific forests stands. In Iran, during the second half of the twentieth century, it is estimated that about 50% of the Hyrcanian forest area has disappeared. The most severe damages impact the plain and lower elevation forests, which represent the most suitable habitat for *P. fraxinifolia* and more generally riparian communities. The same analysis can be made in Georgia where 90% of the original lowland forests have been completely destroyed in the last century (Kozłowski and Gratzfeld 2013). Even in protected areas, logging and cutting by local people still represent a problem. In Iran, it is forbidden since 2017 for local people to cut trees in the forests located in Northern Iran, but the trees located in riparian environment and corridors along rivers are still impacted and sometimes destroyed because of their proximity with agricultural lands, especially for the culture of rice. The future of the species is also tributary of the possible transformation of low-altitude watercourses and river banks for hydroelectric power stations. Even if the distribution of the species seems important, the fragmentation and vulnerability of the different subpopulations is very high. Future changes toward drier climates might further endanger the species (Maharramova *et al.* 2017). Low genetic diversity may

restrict the adaptation of the species to a changing environment.

Conservation Actions (see Appendix for additional information)

Field surveys are needed to review old indications and the implementation of a long term monitoring for the species and the quality of its habitat is required. A global management plan and a strict conservation policy of the riparian environment should be developed in the different countries where the species grows. The species is currently under protection in national parks and state reserves in Azerbaijan, Georgia and Iran. However, populations from Iran which possess a larger diversity of plastid haplotypes and private alleles were sampled outside the protected areas. To counter possible losses of genetic diversity due to global warming or other human impacts, we propose that Hyrcanian populations of *Pterocarya fraxinifolia* deserve both *ex situ* and *in situ* conservation, as they contain higher amounts of genetic diversity than other populations of the genus (Maharramova *et al.* 2017). The main seed dispersal vector among *P. fraxinifolia* populations is rivers, thus it would be important to collect specimens for *ex situ* culture at watershed level (Yousefzadeh *et al.* 2019). Globally, the species is well represented in botanic gardens and recorded in 112 collections from across the globe (BGCI 2019). However, special attention should be put to ensure better conservation of the genetic diversity of the species in *ex situ* collections.

Credits

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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 -> 1.4. Forest - Temperate	-	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 -> 2.1.2. Small-holder farming	Ongoing	-	Slow, significant declines	-
2. Agriculture & aquaculture -> 2.2. Wood & pulp plantations -> 2.2.2. Agro-industry plantations	Past, unlikely to return	-	Slow, significant declines	-
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.2. Small-holder grazing, ranching or farming	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 Land/Water Protection and Management
Occur in at least one PA: Yes

Conservation Actions in Place
In-Place Species Management
Subject to ex-situ conservation: Yes

Conservation Actions Needed

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

Conservation Actions Needed
1. Land/water protection -> 1.1. Site/area protection
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

Additional Data Fields

Distribution
Estimated extent of occurrence (EOO) (km ²): 1160616
Lower elevation limit (m): 0
Upper elevation limit (m): 1730
Habitats and Ecology
Generation Length (years): 20-30

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