

# Globally Threatened Trees of the Caucasus

**A report on the Caucasus regional tree Red Listing workshop (Tbilisi, Georgia, 26-28 September 2005)**





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Cover picture: The Ajameti State Nature Reserve in Georgia; a mixed oak forest with *Quercus robur* ssp. *imeretina* and *Zelkova carpinifolia* (image courtesy of P.A. Schmidt).



## **1. Introduction**

The global Red Listing of tree species using the IUCN Red List categories and criteria is an important component of the Global Trees Campaign, a joint initiative of FFI and UNEP-WCMC. It ensures that there is accurate and up-to-date information on the world's most threatened trees that can be used to plan for species and habitat conservation action. Promotion and implementation of tree red listing is the primary task of the IUCN/SSC Global Tree Specialist Group. This Group has defined priority taxonomic groups and geographical regions for tree red listing based on an analysis of current Red List information and priorities for biodiversity conservation. The Caucasus is recognised as one such global priority. A workshop was therefore organised to bring together experts knowledgeable on the flora of this global biodiversity hotspot to assess the global conservation status of tree species of the Caucasus.

The workshop was organised by FFI with in-country support from the local NGO, NACRES and advice from the Chair of the IUCN/SSC Global Tree Specialist Group. Preparation of the workshop took into account a broader project in development by IUCN with funding from the Critical Ecosystem Partnership Fund to undertake full plant red listing for the Caucasus region. The tree Red Listing workshop was planned to provide a first phase of this broader IUCN plant red listing initiative.

## **2. Objectives**

The main objectives of the regional tree Red Listing workshop in the Caucasus were to:

- Undertake IUCN Red List training and promote regional collaboration
- Review provisional Red List data for woody plants of the region and carry out Red List evaluations using current IUCN Red List Categories and Criteria
- Facilitate planning for broader regional plant Red Listing
- Identify priority tree conservation activities that the Global Trees Campaign can help to support.

## **3. Workshop overview**

### **Pre-workshop preparation**

In preparation for the regional workshop the organisers invited leading experts in the fields of Caucasian botany, ecology and conservation to attend the workshop. Invited workshop participants were asked to prepare a short presentation summarising their own country's rare and threatened tree species. The workshop organisers provided a short list of 40 tree and shrub species thought to be threatened in the Caucasus based on earlier species evaluation by Gennady Firsov a member of the IUCN/SSC Global Tree Specialist Group. Dr Peter A. Schmidt also prepared a list of woody species based on the review of national red lists for the region provided by Krever *et al* (2001) with some additional species based on his personal knowledge.

### **Workshop participants and agenda**

In total there were 20 workshop participants, representing all the countries in the Caucasus eco-region (with the exception of Iran) as well as Germany, the USA and UK. A list of the participants can be found in Appendix 1 and the workshop agenda in Appendix 2.

#### **Day 1:**

Following a general introduction and welcome by Sara Oldfield, the workshop leader, and Dr George Nakhutsrishvili the guest speakers were invited to give their presentations. See the box below for the details of the speakers and their presentations. After lunch this was followed by national contributions of rare and threatened tree and shrub species and discussions (see Appendix 3).

#### **Day 2:**

Using an edited version (only woody plants) of the rare and endangered plant species listed in the Red Books of the Caucasus countries from Krever *et al* (2001) and the draft species assessments the workshop started to review and discuss the conservation status of each taxon. As the day progressed the preliminary list of threatened species from Krever *et al* was augmented with additional priority species put forward by the workshop participants.



Professor Vahid Hajiyev and Professor Peter A. Schmidt discuss the threatened oaks of Azerbaijan (image courtesy of FFI)

The afternoon provided the workshop participants with a welcome excursion to the Central Botanical Garden in Tbilisi. The trip was hosted by Dr Kereselidze, the garden's director, and his staff. It gave the workshop participants an opportunity to see the garden's national *ex situ* collection of rare and endemic trees.

### Box 1: List of invited speakers and summary of presentations

**Sara Oldfield** (Chair of the IUCN/SSC Global Tree Specialist Group): *1) Background to the IUCN Red Listing for Trees.* A presentation on the IUCN/SSC Tree Specialist Group and its Red Listing work.

*2) Application of the IUCN Red List Categories and Criteria.* An overview of the 2001 IUCN Red List categories and criteria and their application.

**Galina Pronkina** (Russia): *The Development of the IUCN Plant Red Listing in the Caucasus.* An overview of the IUCN Red Listing programme and its application at a regional level with details of the new pan-European initiative to produce a comprehensive Red List of European plant and animal species.

**Peter A. Schmidt** (Germany): *Taxonomy, Distribution and Red Listing: woody plants of the Caucasus.* A comprehensive presentation on the ecology, distribution and biogeography of the threatened trees of the Caucasus with particular reference to their conservation status and taxonomy at a national and global level.



Professor Peter A. Schmidt discusses the endemic trees of Georgia with Dr Gvritshvili at Tbilisi Botanic Garden (image courtesy of FFI).

### Day 3:

The workshop completed reviewing the conservation status of each taxon in the revised Krever *et al* list (2001) and produced a preliminary list of globally threatened trees and shrubs of the Caucasus. This preliminary list was reviewed once again and the IUCN categories and criteria discussed and applied.

The workshop closed with a general discussion on the priorities for future work and future regional collaboration.

## 4. Results

### Globally threatened trees of the Caucasus – a preliminary list

Over the course of the workshop the participants reviewed 160 woody plant taxa, of which 10 were excluded due to synonymy. Of the 150 taxa evaluated, seven are Critically Endangered (CR), 10 Endangered (EN) and 15 Vulnerable (VU). This gives a total of 30 globally threatened tree species and two globally threatened sub-species. The 32 globally threatened woody plant taxa of the Caucasus with details of the category of threat and the criteria used are listed in Table 1. The main threats to these globally threatened trees and shrubs are exploitation and habitat degradation through logging and to some extent over-grazing (particularly of the timberline species). In addition, some of the species are narrow endemics whose distributions are restricted to specific forest habitats, such as the Colchic or Hyrcanian forests.



*Quercus pontica*, a species with a narrow range of distribution in Turkey and Georgia and evaluated as Vulnerable (VU) by the workshop (image courtesy of David Kharazishvili)

A number of the species are collected for their ornamental appeal or for medicinal purposes, for example, *Staphylea colchica*, whose flowers are used to alleviate the symptoms of diabetes. *Calligonum bakuense* another decorative shrub is Critically Endangered and restricted to just one locality in Azerbaijan. However, there are currently no *ex situ* collections of this species in botanic gardens or seed banks.

Of the remaining 117 taxa, 14 were evaluated as Near Threatened (NT), 39 as Data Deficient (DD) and 65 as Least Concern (LC). A list of taxa evaluated as NT or DD is in Appendix 4. A large proportion of the proposed 150 woody taxa were evaluated as LC. This was due to the fact that although the species are rare and threatened in the Caucasus they are not necessarily threatened on a global scale. An example is the Strawberry tree, *Arbutus andrachne*, a rare tree in Georgia but widely distributed in the Mediterranean.

### Taxonomy and endemism in the Caucasus

Thirty nine taxa were evaluated as DD in the workshop. The primary reason for this was due to uncertainties with the taxonomic status of many of the taxa, particularly species in the Rosaceae (in the genera *Sorbus*, *Pyrus*, *Rubus* and *Rosa*) and Leguminosae

(*Genista*). There are taxonomic differences between species accepted in European taxonomy and in the Caucasus and Russia. In the Caucasus there are many described species for a number of genera, the majority endemic to the Caucasus. However, many of these are not recognised in European taxonomy resulting in many synonyms. The workshop participants agreed that it was outside the scope of the workshop to make valid assessments on these taxa until there is further taxonomic research in these taxonomically complicated groups.

### **The Caucasus: a centre of diversity for pears?**



*Pyrus salicifolia*, one of the many pear species in the Caucasus eco-region (image courtesy of P.A. Schmidt)

The Caucasus, in particular, Georgia, Armenia, and Azerbaijan are home to many endemic species of pear, *Pyrus*, some of which, like Demetrius's pear, *P. demetrii*, are globally threatened. Although the exact number of *Pyrus* species in the Caucasus is not known, due to unresolved taxonomy, the region is most certainly a centre of diversity for this very economically important genus. The region could become a future source of stock for drought and fungal resistant pear varieties. It is imperative that a conservation strategy (both *in situ* and *ex situ*) is developed for the wild relatives of domesticated pear in the Caucasus.

### **Lack of current field data**

In addition, many species were evaluated as Data Deficient as there was not up to date information available on their current status and distribution. This was primarily due to due to a lack of financial resources for fieldwork, particularly since the break up of the former USSR. For example, a species of currant, *Ribes achurjanii*, is endemic to north Armenia and known to be only in two localities. However, no further information is known about its status.

**Table 1: A preliminary list of globally threatened trees and shrubs of the Caucasus**

Taxon	Category	Criteria	Comments on rarity, distribution, decline, current threats and uses
1 <i>Acer divergens</i>	VU	B1b(iii)	Endemic to NE Turkey. Grows on sheer rocks and could be at threat from dam construction.
2 <i>Alnus subcordata</i>	VU	A2c	A Hyrcanian endemic restricted to Azerbaijan and Iran. Exploitation of lower montane forests may threaten sub-populations in Azerbaijan. Distribution area <35 hectares.
3 <i>Amygdalus georgica</i>	EN	B2ab	Endemic to eastern Georgia and therefore has a limited geographical distribution.
4 <i>Amygdalus nairica</i>	VU	B1b(iii)	Grows on the border of Armenia and Iran. Status in Iran is not known. Grows on dry arid slopes in semi-desert in open deciduous forest. Extent of occurrence is < 20,000 km <sup>2</sup> , possibly even 5 km <sup>2</sup> .
5 <i>Astracantha arnacanthoides</i>	CR	B2ab(iv)	A dwarf shrub found in only two localities in Crimea and the Black coast.
6 <i>Betula browicziana</i>	EN	B1a+B2a	Recently described species currently only known from Turkey. Restricted to 3 fragmented localities in sub-alpine valleys.
7 <i>Betula medwediewii</i>	VU	B1b(iii)	Found in Georgia and Turkey only. Grows in the sub-alpine belt which in Georgia is under threat from over grazing. Sub-populations in Turkey are healthy. A promising ornamental due to its beautiful autumn foliage.
8 <i>Betula raddeana</i>	VU	B2ab	A tertiary relict found in Azerbaijan, Russia and Georgia. Restricted to sub-alpine belt which is threatened by exploitation and over-grazing. The populations are scattered and there is an observed decline in area of occupancy by at least 30%.
9 <i>Calligonum bakuense</i>	CR	B2ab(v)	Only known from one locality in Azerbaijan, the Apsheron peninsula. Total population does not exceed 500 individuals. Is collected for its decorative appeal. There is no <i>ex situ</i> collection of the species.
10 <i>Colutea komarovii</i>	CR	B1a+B2a	Known from only 1 locality on the border between Armenia and Azerbaijan (Nakhichevan). Very restricted area of occurrence (<100 km <sup>2</sup> ) and the total population is estimated to be <250 individuals. There has been no fieldwork in the last 10 years to confirm its status.
11 <i>Cornus koenigii</i>	VU	A2cd	Endemic to the west Caucasus, Georgia and Russia. Its habitat, Colchic forest, is threatened by exploitation and fragmentation. The genus <i>Cornus</i> is represented by several genera in Caucasian taxonomy, for example, the species <i>Swida koenigii</i> .
12 <i>Corylus colchica</i>	VU	B1ab(iii)	Endemic to Georgia. Restricted to Colchic forest with other relict species. It is threatened by exploitation of its habitat. Its population is in continuing decline due to selective cutting. Its area of occurrence is <10,000 km <sup>2</sup> .
13 <i>Daphne albowiana</i>	EN	B2ab(iii)	Considered to be a Colchic endemic restricted to limestone rocks. Is both ornamental and medicinal. Is a synonym of <i>D. pontica</i> in Turkey. Very rare scattered sub-populations.
14 <i>Daphne pseudosericea</i>	EN	B2ab(iii)	Considered to be a Colchic endemic, restricted to limestone rocks in Georgia and Russia. Ornamental and medicinal. However, is a synonym of <i>D. pontica</i> in Turkey and so requires further taxonomic research.

Taxon	Category	Criteria	Comments on rarity, distribution, decline, current threats and uses
15 <i>Epigaea gaultherioides</i>	VU	B1	In Georgia (Ajara) at only one locality. The species has a <500 km <sup>2</sup> occupancy. However, in Turkey it is not threatened. A rare relic of the Tertiary period. The other two species in the genus occurs in E North America and Japan.
16 <i>Osmanthus decorus</i>	VU	B1b(iii)	Restricted to temperate forests in SW Georgia (Ajara) and Turkey. In Georgia found in the undergrowth of chestnut forests and is threatened by exploitation.
17 <i>Pinus brutia ssp. eldarica</i>	CR	B2a	Only known from one wild population in Azerbaijan. Has been recently declared a reserve and so natural regeneration is hopeful. All other stands in Caucasus were planted. Status in Iraq is not known.
18 <i>Pinus brutia ssp. pityusa</i>	EN	B2ab (iii)	Only in Russia and NW Georgia (Black sea coast). Area of occupancy is <500 km <sup>2</sup> ; The Pitsunda Reserve in Abkhazia was effected during and after military conflicts.
19 <i>Pyrus demetrii</i>	EN	B1ab	A south Caucasian endemic only known from 2 localities in Georgia and 2 in Armenia. Its area of occupancy is <10 km <sup>2</sup> .
20 <i>Pyrus eldarica</i>	EN	B1ab	Only known from 1 locality in Azerbaijan. It's taxonomic status is uncertain
21 <i>Pyrus sachokiana</i>	EN	B1ab	Restricted to Georgia to 2 localities in steppe vegetation. Individuals are scattered.
22 <i>Pyrus ketzkhovellii</i>	EN	B1ab	Only known from 1 locality in Georgia and 1 in Armenia. Again its taxonomic status is uncertain.
23 <i>Quercus pontica</i>	VU	B1ab(iii)	Has a narrow range of occurrence in Turkey and Georgia. In the Red book of Turkey. In Georgia it is continuing to decline. Grows on the timberline which is threatened by grazing. An isolated species taxonomically and therefore very interesting.
24 <i>Quercus robur ssp. imeretina</i>	VU	B2ab(iii,v)	In Georgia and Russia only. In Russia restricted to the Black sea coast. In Georgia present in a state reserve, although there is a pipeline running through it. In decline due to logging. There is some uncertainty to its taxonomic status. Was considered a sub-species in Menisky's original monograph but in his most recent publication is not.
25 <i>Rhododendron smirnowii</i>	VU	B1b(i)	A narrow extent of occurrence in south west Georgia and Turkey. In decline in Georgia although populations in Turkey are stable or increasing. Frost resistant cultivars were introduced into cultivation in second half of 19 <sup>th</sup> century.
26 <i>Rhododendron ungerii</i>	VU	B1b(i)	Similar distribution to <i>R. smirnowii</i> although less threatened. Leaves are collected for medicinal purposes by local people. Populations in Turkey are stable and is an early successional species following forest exploitation.
27 <i>Rhodothamnus sessilifolius</i>	CR	B1a	Endemic to Turkey and only known from one population. A recently re-discovered species which was thought to be extinct. One of 2 species in the genus <i>Rhodothamnus</i> .
28 <i>Salix kikodseae</i>	EN	B1a	The rarest <i>Salix</i> in the Caucasus but closely related to <i>S. phyllicifolia</i> . Needs a review of current situation.
29 <i>Salix rizeensis</i>	CR	B1a	Endemic to Turkey with only 1 known location.
30 <i>Salix trabzonica</i>	CR	B1a	Endemic to Turkey with only 1 known location.

<b>Taxon</b>	<b>Category</b>	<b>Criteria</b>	<b>Comments on rarity, distribution, decline, current threats and uses</b>
31 <i>Sambucus tigranii</i>	VU	B1ab(iii)	Was considered an endemic of Armenia, but recently found in S Georgia. In Georgia only known from one population of 17 individuals, of which only 4 are mature. In Armenia restricted to a number of scattered populations on rocky slopes in canyons.
32 <i>Staphylea colchica</i>	VU	A2d; B1b	Has a restricted range in Colchic forests (W Georgia and some localities in neighboured Russia). Is threatened by over collection for culinary and medicinal (diabetes) purposes and over grazing. Distribution has reduced by 50%.

## 5. Discussion and recommendations

Peter A. Schmidt, one of the guest speakers at the workshop, opened his presentation by asking the other participants “Where are the Caucasian species on the global Red List”? An indication of how under represented the threatened plants of the Caucasus are in the global Red List of threatened plant species. This three day regional Red Listing workshop came a long way in readdressing this issue by producing a preliminary list of 32 globally threatened trees and shrubs of the Caucasus. The workshop also provided participants with basic training in red listing and the application of the categories and criteria. This will help to ensure consistency in the application of the categories and criteria throughout the region and reduce their misapplication.

The workshop provided a timely opportunity for national experts of Caucasian plants to meet and discuss, some for the very first time, the threatened trees of the Caucasus. This form of regional cooperation and collaboration is one of the first for the Caucasus since the break up of the former USSR and the political and economic instability that has followed. Although the countries representing the Caucasus have excellent national Red Data books the lack of regional collaboration and political and economic instability in the past ten years has hindered progress in regional conservation initiatives. As trees and forests do not respect international borders it is imperative that the regional collaboration initiated at this workshop continues into the future to ensure the conservation of threatened trees and unique forests of the Caucasus eco-region. A list of seven recommendations from the workshop is given below:

### Further workshop recommendations

1. Further regional and international collaboration:
  - a. to conduct fieldwork and taxonomic research on the NT and DD species
  - b. to establish the conservation status of Colchic forests and timber line tree species
2. Establish contact with Iranian botanists and/or foresters to confirm distribution status of woody species in the Iranian part of the Caucasus eco-region
3. Workshop participants to integrate fully into the new initiative by IUCN and Conservation International to develop a new plant red list for the Caucasus
4. Establish links with the IPGRI/ECP/GR working group on *Malus/Pyrus*
5. Seek international funding to develop a conservation strategy (both *in situ* and *ex situ*) for *Pyrus* in the Caucasus.
6. Submit completed data assessments for the 32 taxa evaluated as globally threatened to IUCN.
7. Develop integrated conservation strategies for the 32 threatened trees and shrubs of the Caucasus

## 6. Acknowledgements

The organisers of the workshop would like to thank all the participants who contributed so much to the success of the meeting. The overview materials, maps and knowledge provided by Dr Peter A. Schmidt were of particular value in ensuring that we were able to review such a wide range of species in a short space of time. The support provided by NACRES in arranging the logistics is gratefully acknowledged as are the excellent translation skills of Ketevan Batsatsashvili. The generous hospitality of our Georgian colleagues Dr Nakhutsrishvili, Dr Kereselidze and all their staff is much appreciated and will be long remembered. Thank you to everyone for providing such a positive and rewarding three day meeting.

## 7. References

Krever V., Zazanashvili N., Jungius H., Williams L. and Petelin D. (Eds.) 2001 *Biodiversity of the Caucasus Ecoregion: an analysis of biodiversity and current threats and initial investment portfolio*. WWF

## 8. List of acronyms and abbreviations

CR	Critically Endangered
DD	Data Deficient
ECP/GR	European Cooperative Programme for Crop Genetic Resources Networks
EN	Endangered
IPGRI	International Plant Genetic Resources Institute
IUCN	World Conservation Union
LC	Least Concern
NACRES	NACRES - Centre for Biodiversity Conservation
NT	Near Threatened
SSC	Species Survival Commission
UNEP	United Nations Environment Programme
VU	Vulnerable
WCMC	World Conservation Monitoring Centre
WWF	World Wildlife Fund for Nature

## Appendix 1

### Workshop participants

Name	Institute	Email contact	Country
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## **Appendix 2**

### **Agenda**

#### **26 September 2005**

- 10.00-10.30 Welcome and introduction to the meeting  
10.30-11.00 Background to the IUCN Red List Categories and Criteria – Sara Oldfield  
11.00-11.30 The development of IUCN plant Red Listing in the Caucasus – Galina Pronkina  
11.30-12.00 Taxonomy, distribution & Red Listing: woody plants of the Caucasus – Peter Schmidt  
12.30-14.00 Lunch  
14.00-16.00 National Experiences in Red Listing  
16.00-17.00 Application of the IUCN Red list Categories and Criteria – Sara Oldfield & Antonia Eastwood

#### **27 September 2005**

- 9.00-12.00 Working groups to review draft data sheets for woody plants of the region  
12.00-13.00 Working group progress reports and discussion  
13.00-14.00 Lunch  
14.00-15.00 Discussion continued  
15.00-17.00 Visit to Tbilisi Botanic Garden (to be confirmed)  
19.00 Workshop dinner

#### **28 September 2005**

- 9.00-11.00 Working groups to agree additional priority species for evaluation  
11.00-12.30 Discussion  
12.30-13.30 Lunch  
13.30-15.30 Planning for future work
  - Priorities for conservation action
  - Regional collaboration in red listing

15.30-16.00 Final remarks and close of meeting

## Appendix 3

### National contributions and presentations

*Adil Güner* (Turkey) gave a short talk on the threatened plants of Turkey with particular reference to the most recent Turkish Red List (published in 2000). He also introduced a DVD presentation on sustainable livelihood development in a traditional Georgian community living in the Turkish Caucasus.

*George Fayvush* and *Kamilla Tamanyan* (Armenia) presented the workshop with a complete plant species list of Armenia including their regional distributions. They also discussed the status of the Armenia Red List particularly the progress of the second edition.

*George Nakhutsrishvili* (Georgia) gave an illustrated presentation on the mountain vegetation of the Caucasus, from the wet Colchic forests to the dry Hyrcanian forest of the Talysh Mountains.

*Vahid Hajiyeu* (Azerbaijan) presented the workshop with a list of the threatened tree species of Azerbaijan and gave a more detailed presentation and report specifically on the threatened oaks.

*Shamil Shetekauri* (Georgia) presented the workshop with preliminary list of threatened trees and shrubs from the Caucasus.

*Svetlana Litvinskaia* (Russia) gave an illustrated presentation of the trees and shrubs of the western Caucasus.

*Galina Pronkina* (Russia) gave a presentation on the development of the new Red data book for the Russian federation which has 676 plant species proposed for inclusion.

## Appendix 4

### A list of woody species considered to be Near Threatened or Data Deficient in the Caucasus

Species	Category	Comments
<i>Acer trautvetteri</i>	NT	Although fairly widely distributed in the region grows on the timberline and is threatened by over grazing
<i>Berberis iberica</i>	DD	Requires further fieldwork to establish its status
<i>Buxus colchica</i>	DD	Requires taxonomic investigation
<i>Buxus hyrcana</i>	NT	In Azerbaijan restricted to Hyrcanian forest. In Iran grows in low montane areas. Collected for floristry
<i>Calophaca wolgarica</i>	DD	In Russian Red Data book. Requires further fieldwork to establish its status
<i>Cornus meyeri</i>	DD	Endemic to the east Caucasus. Requires further fieldwork to establish its status
<i>Cotoneaster saxatilis</i>	DD	In Azerbaijan and Georgia. Requires further fieldwork to establish its status
<i>Cotoneaster soczavianus</i>	DD	Endemic to Russia and Georgia. Requires further fieldwork to establish its status
<i>Crataegus pallasii</i>	DD	Requires further fieldwork to establish its status
<i>Daphne baksanica</i>	DD	Requires taxonomic investigation
<i>Daphne transcaucasica</i>	DD	Requires taxonomic investigation
<i>Eremosparton aphyllum</i>	DD	In Dagestan in Russia. Requires taxonomic investigation
<i>Euonymus nana</i>	DD	Worldwide distribution needs checking
<i>Euonymus velutina</i>	NT	Rare in Armenia and Azerbaijan but also present in Iran
<i>Frangula grandifolia</i>	DD	Hyrcanian relict species restricted to Azerbaijan and Iran. Requires further fieldwork to establish its status
<i>Genista abchasica</i>	DD	Requires taxonomic investigation
<i>Genista adzharica</i>	DD	Requires taxonomic investigation
<i>Genista angustifolia</i>	DD	Requires taxonomic investigation
<i>Genista godetii</i>	DD	Requires taxonomic investigation
<i>Genista humifusa</i>	DD	Requires taxonomic investigation
<i>Genista suanica</i>	DD	Requires taxonomic investigation
<i>Gleditsia caspica</i>	DD	Hyrcanian forest only which is in decline in Azerbaijan. Occurrence and occupancy only known from Azerbaijan. Status in Iran not known.
<i>Ilex hyrcana</i> = <i>I. spinigera</i>	NT	Hyrcanian species restricted to Azerbaijan and Iran.
<i>Juniperus excelsa</i> subsp. <i>polycarpus</i>	DD	Requires taxonomic investigation
<i>Leptopus colchicus</i> ( <i>Andrachne colchica</i> )	DD	Restricted to Colchic forests in Russia and Georgia. Requires further fieldwork to establish its status
<i>Parrotia persica</i>	NT	In the Hyrcanian forests of Iran and Azerbaijan (Elberus and Talysh mountains). Exploitation for wood threatens forest at lower altitudes.
<i>Pterocarya pterocarpa</i>	NT	Scattered distribution in Turkey, Georgia, Iran, Azerbaijan and Russia

Species	Category	Comments
<i>Pyrus boissieriana</i>	NT	Restricted to Hyrcanian forests in Azerbaijan, Iran and Armenia which are threatened by logging.
<i>Pyrus grossheimii</i>	NT	Restricted to Hyrcanian forests in Azerbaijan, Iran and Armenia which are threatened by logging.
<i>Pyrus hyrcana</i>	NT	Restricted to Hyrcanian forests in Azerbaijan, Iran and Armenia which are threatened by logging.
<i>Pyrus oxyprion</i>	DD	Requires further fieldwork to establish its status
<i>Pyrus raddeana</i>	DD	Requires taxonomic investigation
<i>Q. petraea</i> ssp. <i>dshorochensis</i>	DD	Requires taxonomic investigation
<i>Quercus hartwissiana</i>	DD	Requires further fieldwork to establish its status
<i>Q. robur</i> ssp. <i>pedunculiflora</i>	NT	In Iran and eastern Turkey. A very important sub-species for the Caucasus. Restricted to flat plane areas which are at threat from logging.
<i>Rhamnus imeretina</i>	NT	Threatened by logging in Russia and Georgia but widespread in Turkey
<i>Ribes achurjanii</i>	DD	Endemic to Armenia. Requires further fieldwork to establish status
<i>Ribes armenum</i>	DD	In Armenia and Turkey. Requires further fieldwork to establish status.
<i>Rosa azerbaijdzhanica</i>	DD	Requires taxonomic investigation
<i>Rosa haemispherica</i>	DD	Requires taxonomic investigation
<i>Rosa karjagini</i>	DD	Requires taxonomic investigation
<i>Rosa nisami</i>	DD	Requires taxonomic investigation
<i>Rosa sosnovskyana</i>	DD	Requires taxonomic investigation
<i>Salix kuznetzowii</i>	NT	Grows just below the timberline in the Greater and Lesser Caucasus
<i>Salix pontosericea</i>	NT	Endemic to Georgia and Russia with only a few scattered localities
<i>Salix pseudodepressa</i>	NT	
<i>Salix kazbekensis</i>	DD	Requires taxonomic investigation
<i>Sorbus armeniaca</i>	DD	Requires taxonomic investigation
<i>Sorbus hajastana</i>	DD	Requires taxonomic investigation
<i>Sorbus luristanica</i>	DD	Requires taxonomic investigation
<i>Tamarix florida</i>	DD	
<i>Tamarix meyeri</i>	DD	
<i>Tamarix octandra</i>	DD	