<http://www.biome-explorer.net/Montane%20Forest/Hyrcanian%20Montane%20Forest.html>

Hyrcanian Montane Forest

Included here are the Talish Mountains and the Elburz Mountains extending in a crescent around the south and southwest parts of the Caspian Sea.

**Hyrcanian *Alnus-Pterocarya* Forest**

These ancient yet ill-defined forests are confined mostly to damp and poorly drained soils on the coastal plain. They are characterized by the near endemic *Alnus subcordata* (Betulaceae) and *Pterocarya fraxinifolia* (Juglandaceae). Common associates include *Acer insigne, Albizia julibrissin, Alnus glutinosa, Buxus sempervirens, Celtis australis, Diospyros lotus, Ficus carica, Fraxinus excelsior, Melia azedarach, Mesilus germanica, Morus nigra, Paliurus spina-christa, Prunus laurocerasus, Punica granatum* and *Salix fragilis,* while common endemic or near endemic species are *Gleditsia caspica* (Fabaceae), *Populus caspica* (Salicaceae), and *Prunus caspica* (Rosaceae). The shrub layer comprises *Andrache colchica, Hypericum androsaemum, Sambucus edulis* and several endemic taxa like *Epimedium pinnatum* subsp. *pinnatum* (Berberidaceae), *Ruscus hyrcanus* (Liliaceae) and *Teucrium hyrcanus* (Lamiaceae). These forests are also characterised by the presence of numerous lianas and climbers, which occur on many of the trees and shrubs - typical species are *Clematis vitalba, Hedera colchica, Jasminum officinale, Peroploca graeca, Rubus caesius, Smilax excelsa, Solanum dulcamara, Tamus communis* and *Vitis sylvestris*.

**Hyrcanian *Zelkova-Parrotia* Forest**

These forests, dominated by *Zelkova carpinifolia* and the near endemic *Parrotia persica* (Brassicaceae), are primarily confined to the foothills and lower mountain slopes up to about 800 m. For a long time *Parrotia* was thought to be an endemic Hyrcanian genus, but a small stand of *P. persica* was discovered in the Alazab Valley near Kutkashen (Azerbaijan) in the early 1970s. Other important tree species are *Albizzia julibrissin,* *Carpinus betulus, C. caucasica, Diospyros lotus* and the endemic or near endemic *Acer velutinum* (Aceraceae), *Ficus hyrcana* (Moraceae) and *Quercus castaneifolia* (Fagaceae), while understory species frequently include *Cornus meyeri, Crataegus pentagyra, Danaë racemosa, Frangula alnus, Prunus divaricata* together with the endemic *Ilex hyrcana* (Aquifoliaceae) and *Ruscus hyrcanus* (Ruscaceae). Lianas typically include *Hedera pastuchowii, Periploca graeca* and *Smilax excelsa*.

**Hyrcanian *Fagus orientalis* Montane Forest**

These upland beech forests occupy some of the most humid parts of the Hyrcanian uplands usually between altitudes of about 600 to 1200m. The few arboreal associates include *Acer cappadocicum, A. insigne, Fraxinus excellsior, Mespolus germanica* and *Taxus buccata*. The ground layer is typically poor in species but may include *Asperula odorata, Cardamine bulbifera, Fragaria vesca, Filipendula ulmaria, Geranium robertianum, Geum urbanum, Lamium luteum, Lathraea squamaria, Phyllitis scolopendium, Potentilla reptans, Ranunculus constantinopolitanus, Sanicula europaea, Stellaria holostea* and *Viola odorata*. At heights above 1200m the forest becomes very stunted and its here that the endemic *Acer hyrcanum* (Aceraceae) is encountered.

**Hyrcanian *Quercus macranthera* Sub-Alpine Forest**

These more xeric forests are confined to the higher mountain zones mainly between elevations of 1600-3000 m. Among the comparatively rich assemblage of associated low trees and shrubs are *Berberis integerrima, Celtis tournefortii, Cotoneaster racemiflora, Juniper communis, Lonicera caucasica, Pyrus cordata, Rhamnus spathulifolia, Sorbus aria, S. boisseri, S. torminalis, Ulmus monyana, Viburnum lantana,* and the two endemic or near endemic species *Acer hyrcanum* (Aceraceae) and *Pyrus boissieriana* (Rosaceae). A version of this type of forest occurs in the high altitude, rocky forest of Dodangeh south of Sari. This is the last refuge of the endemic tree *Betula pendula* (Betulaceae). Studies show that this species and *Corylus avellana* are relicts of an ancient more extensive Hyrcanian forest that has now largely disappeared. Species found associated with these *Betula* stands include a rich variety of endemic taxa such as *Alchemilla farinosa* (Asteraceae), *Cortusa matthiola* subsp. *iranica* (Primulaceae), *Delphinium elbursense* var. *elbursense* (Ranunculaceae), *Scabiosa hyrcanica* (Dipsaceae), *Semervivum iranicum* (Crassulaceae) and *Stachys persica* (Lamiaceae).

**Hyrcanian *Cupressus sempervirens* Forest**

These rare cypress forests are thought to be relict stands of a once much more extensive forest of ancient Mediterranean vegetation that probably pre-dates much of the current Hyrcanian vegetation.

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# Hyrcanian Endemic Plants

**Endemics in Family Order**

**Amaryllidaceae**
Allium lenkoranicum

**Apiaceae**
Chaerophyllum meyeri

**Aquifoliaceae**
Ilex hyreana

**Asparagaceae**
Ornithogalum bungei
Ruscus hyrcanus

**Asteraceae**
Amblyocarpum inuloides
Cousinia hablizii
Doronicum wendelboii

**Berberidaceae**
Epimedium pinnatum

**Betulaceae**
Alnus cordifolia var. subcordata

**Boraginaceae**
Caccinia strigosa
Eritrichium gracillimum
Lepechiniella persica
Lepechiniella wendelboi
Lindelofia kandavanensis
Myosotis anomala
Nonea longiflora
Onosma anisocalyx
Onosma borragoidina
Onosma sharifi
Onosma urmensis
Paracaryum pygmaeum
Rindera regia
Rochelia mirheydari

**Brassicaceae**
Elburzia fenestrata
Thlaspi inhumile

**Buxaceae**
Buxus hyrcana

**Caprifoliaceae**
Pterocephalus glandulissimus
Scabiosa hyrcanica

**Caryophyllaceae**
Saponaria bodeana

**Crassulaceae**
Sempervivum iranicum

**Fabaceae**
Gleditsia caspica

**Fagaceae**
Quercus aegilops var. castaneifolia

**Geraniaceae**
Geranium montanum

**Hamamelidaceae**
Parrotia persica

**Iridaceae**
Crocus boryanus var. caspius
Crocus hyrcanus

**Lamiaceae**
Ballota platyloma
Betonica nivea subsp. mazandarana
Lophanthus allotrius
Origanum hyrcanum
Phlomis ghilanensis
Salvia hypoleuca
Scutellaria glechomoides
Scutellaria tournefortii
Stachys laxa
Stachys persica
Stachys subaphylla
Stachys talyschensis
Teucrium hyrcanum

**Liliaceae**
Fritillaria canum
Fritillaria grandiflora
Lilium ledebourii

**Linaceae**
Linum bungei

**Malvaceae**
Alcea gorganica
Alcea hyrcana
Alcea sotudehi
Malvalthaea heterphylla
Malvalthaea palmata

**Moraceae**
Ficus ovata var. octomelifolia

**Onagraceae**
Epilobium rechingeri

**Orobanchaceae**
Orobanche eriophora
Pedicularis rechingeri
Rhynchocorys maxima

**Papaveraceae**
Corydalis chionophila subsp. firouzii
Corydalis persica var. hyrcana
Papaver chelidoniifolium

**Phyllanthaceae**
Andrachne pulvinata

**Plantaginaceae**
Linaria demawendica
Veronica aucheri
Veronica bungei
Veronica chionantha
Veronica euphrasiifolia
Veronica francispetae
Veronica mazanderanae
Veronica mirabilis
Veronica paederotae
Veronica rechingeri

**Plumbaginaceae**
Acantholimon bodeanum var. faustii
Acantholimon demavendicum
Acantholimon embergeri
Acantholimon esfandiarii
Acantholimon gadukense
Acantholimon ophiocladus
Acantholimon scirpinum
Acantholimon scorpius
Acantholimon senganense
Acantholimon serotinum
Acantholimon sorchense
Acantholimon spinicalyx

**Polygalaceae**
Polygala platyptera

**Primulaceae**
Cortusa matthioli subsp. iranica
Cyclamen coum subsp. elegans
Dionysia aretioides
Primula heterochroma

**Ranunculaceae**
Aconitum iranshahrii
Delphinium elbursense
Ranunculus dolosus

**Rosaceae**
Alchemilla amardica
Alchemilla condensa
Alchemilla farinosa
Alchemilla melancholica
Potentilla gilanica
Potentilla kandauensis
Potentilla radiata
Potentilla sischanensis var. peterae
Prunus divaricata
Pyrus boissieriana
Pyrus grossheimii
Pyrus hyrcana
Pyrus mazanderanica
Rosa rechingeri
Rubus persica
Rubus rechingeri

**Rubiaceae**
Asperula mazanderanica
Asperula microphylla
Galium aucheri
Galium elbursense
Galium subvelutinum subsp. delicatulum
Matthiola subglabra

**Salicaceae**
Populus caspica

**Sapindaceae**
Acer hyrcanum
Acer monspessulanum
Acer velutinum

**Saxifragaceae**
Saxifraga mazanderanica

**Scrophulariaceae**
Scrophularia crassicaulis
Scrophularia elbursensis
Scrophularia gaubae
Scrophularia gorganica
Scrophularia hyrcana
Scrophularia megalantha
Scrophularia rostrata
Verbascum stachydiforme
Verbascum sublobatum

**Solanaceae**
Atropa pallidiflora
Solanum kieseritzkii

**Thymelaeaceae**
Daphne rechingeri

**Violaceae**Viola spathulata

**Summary**

Included here are relict Hyrcanian forests of the coastal plains extending in a crescent around the south and southwest of the Caspian Sea including the area around Lenkoran, Gilan and Mazanderan. It also extends up the northwestern slopes of the Talish Mountains and the northern slopes of the Elburz Mountains.

Of the endemic and near endemic vascular plants so far recorded there are 138 species in 83 genera and 41 families but no endemic genera. However, this area is a refuge for the near endemic genus Parrotia which is a surviving member of the once widely distributed family Hamamelidaceae.

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