Rang of Oak forest in Iran

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Abstract

This study is based on extensive field operations in the Zagros - Arasbaran and Hyrcanian habitats been the aim of determining the types and range physiographic of forest oak trees and their diversity has been identified. Accordingly, a total of 8 species of oak forest types have been identified as the main species. Quercus Persica Zohary, Q. infectoria Oliv, Q.libani Oliv Q.magnosquamata Djavanchire in the Zagros habitat, Q.castaneifolia CAM, Q.macrantera Fisch, Q.iberica Krassi in the Hyrcanian habitat and Q.macrantera Fisch Q.komarovii Camus Arasbaran in the Arasbaran habitat. The results also showed that the total area of oak forest is 5785760 hectares in Iran that about 98 percent of its habitat is located in the Zagros. Iran Oak forests are in Kerishan Mountain in Arasbaran habitat for highest latitude(fig:1) and eastern longitude of oak forest growth in Ashkhane Mountain (Khorasan province) and the lowet alititud of oak forest growth in Parishan mountain (Fars province). About 88 oak forest type identified that there are about 30 type for Zagros habitate and 35 type for Hyrcanian habitate and 23 type for arasbaran habitate. The forests are growing in the range 350 to 2000 mm of rainfall in the hyrcanian region and about 300 to 500 mm in Arsbarn and 300 to 900 mm in the Zagros region. At least the habitat maps for oak forests in Iran prepared and published they are with 1:250000 scales for zagrous and 1:50000 scale for Hyrcany and Arasbaran habitat.

Keywords: Oak forest, Quercus spp., forest map, Iran vegetation

INTRODUCTION

Iran's largest forest is dominated by oak trees. It was therefore important to make a closer study of this habitat is considered and Properties associated with its habitat and range Silviculture be evaluated. This study was carried out throughout Iran and in the evaluation of direct and reliable information available is used.

The first issue of the New Forest is an area of vegetation maps. Forests of Iran have vegetative growth in five areas. The oak trees are present in the three vegetative regions. The first data about tree and shrub species in the forests of Iran by Boissier in 1888 were collected. This collection was published with the flora and the East. Professor Rechinger (1937) published the Flora Iranica book. He was developed to introduce the different species of oak forests and partly in connection with its distribution was investigated. He Was introduced names 10 species of oak : Q.robur L., Q.infectoria Oliv., Q.petraea L.ex Liebel., Q.macranthera Fisch & C.A. Mey. exHohen. Q.castaneifolia C.A.Mey.Q.libani oliv.,Q.brantii Lindi,Q.baloot Griff.,Q.dilatata Royle.,Q.semecarpifolia Sm.in Rees. The first map of Iran vegetation was published in 1969, this map was prepared by Mobayen and Teregobof and FAO paid the cost of the study this map has 1:250000 scale. Sabeti(1965) examined Iran's forests widely He wrote a valuable book about forests, trees and shrubs in Iran, which is still used as a reference. In this book he introduces 17 species and 7 subspecies of the Quercus genus. Javanshir,K (1970) studied about oak forests in Iran specially in Zagroos habitat and he introduced about 39 species and subspecies of Oak genus. The forests and grasslands organization made some maps with 1:50000 scale call green map. This map is written on the forest
types that have no boundaries. This study will examine the properties of Silviculture and geographical distribution of oak trees. The main objective of this study was to map the area of measurement oak trees. The study also considered the following: the area and the variety of types - identify the species of oak - identifying with other species of tree and shrub types - dense cover canopy - range elevation of oak forest - climate characteristics - geological characteristics and other Silviculture properties. So this study is one of strictest and update data about oak trees that are part of the results is presented in this paper.

MATERIAL & METHODS
Among five Iran vegetation region three regions include Zagroos, Hycranian and Arasbaran habitat selected for study area. About 60 sheets of map 1:50000 scale for Hycran and Arasbaran sites and 19 sheets of map 1:250000 scale for Zagroos habitat were studied. In order to collect the required data from direct observation, measurement, sampling, interviews and analysis were reasonable. This study based on outsourced Braun-Blanquet floristic approach (combined species) and Physiognomy methods of Kochler were implemented on the scale was set at the unit level. Boundaries of units of study based on hydrological units were set up within the catchment area of the ridge and valley lines were used to determine their scope. Using satellite images of the initial study to determine the boundaries of land units homogeneous X-ray studies based on physical characteristics (slope and elevation) were identified. Then go to the infantry units of homogeneous parts, and information was collected. The minimum number of samples per unit surface area was determined from 400 to 1,600 square meters for each sample was selected. Each plot represents a condition where the eye as it was set. This piece is based on 5000 samples and the data were evaluated in other projects and studies information and management was prepared to compare, combine and were summed. Finally, homogeneous units with the same type and canopy density were introduced as a unit of vegetation and were coded and their positions were marked on the map in the table of all results - charts and maps are presented.

RESULTS & DISCUSSION
Area and type of oak forests in Iran:
Iranian oak forests, which generally has a density of more than 5% crown cover is more than 5,785,760 hectares about 5589550 hectares in the Zagros, about 100,140 hectares in Arasbaran and about 96,070 hectares in Hycranian habitat is located. The total this range is located with about 80 sheet maps with scale 1:50000 and 1:250000. Generally identified 88 types of oak forest that is composed of 8 species of oak. These species are: Quercus Persica Zohary, Q. infectoria oliv, Q.libani Olive, Q.magnosquamata Djavanchiere, Q.castaneifolia C.A.M, Q.macrantera Fisch, Q.iberica Krassi, Q.macrantera Fisch Q.komarovii Camus
In Table 1 is presented in more detail. The total area of forests of oak about 3 / 1 percent of the canopy density are with 75 to 100% cover, 3 / 2 percent of them are with 50 to 75% and 9 / 16 % with a density of 25 to 50% and 6 / 62% to 5 to25% and 9 / 16% of remaining canopy density is less than 5%. Accordingly, only 200,000 hectares of oak forest are with a canopy density of more than 50%.

Climate ranges in oak forests:
Average annual rainfall of Zagroos oak forests is from 300 to 900, and the average annual evaporation from 1800 mm to 3300 mm and average annual temperature is 8 to 33 degrees Celsius. The average annual rainfall for hycranian oak forests is from 350 to 2000 mm and the average annual evaporation from 800 to 1800 mm and average annual temperature is 10 to 19 degrees Celsius. Average annual rainfall in the Arasbaran oak forests is in the range 300 to 350 mm and average evaporation 1300 to 2100 mm and average annual temperature is 10 to 19 degrees Celsius.

This study showed that Iran's largest forest dominated by oak trees located. The oak forests area are 5785760 hectares that they covered about 65 percent of the Zagros forests, about 15 percent and 80 percent of forests Arasbaran and Hycranian forest. The oak forest types has been created by just 8 oak species that oak trees and other tree and shrub species in Iran have caused the 88 forest types , associated species to be about 193 species. Unfortunately, only 6 / 3 percent of the forest canopy density are more than 50%. This forests grow on so wide elevation e from sea level to high altitude. The widest altitude is in Hycranian forest with 2500 meter.

CONCLUSION
Height distribution of oak trees:
Elevation forests of oak habitat in Zagros range is between 550 to 2400 meters and there is between zero to 2500 meters in Hycranian forests. In Arasbaran habitat oak
forests has been presented in the range 500 to 2200 m from the sea surface (Table 2 - Fig 3).

**Oak forest map:**
Combining data 80 sheets maps with 1:250000 and 1:50000 scales that include a GIS map of oak trees in the oak forests of Iran prepared and published in different scales. Figure no: 2 is shown a map of Oak Forest in Iran.

**REFERENCE**
Boissier, E., (1879). Flora orientalis. Reimpression fac-similee A.Asher & CO. 30-1017
Javanshir, K (1980). Classification of oak in the world, Publications Department of Natural Resources, 17, pp.50
Sabeti, H (1967). Forest trees and shrubs. Agriculture and Natural Resources Research Organization., pp.810
The military geography organization (1969). Topography maps, 1:50000 and 1:250000. 90 sheets
Table 1. Area breakdown of oak trees to the habitat and type of vegetative

<table>
<thead>
<tr>
<th></th>
<th>Arasbaran</th>
<th>Hyrcanian</th>
<th>Zagroos</th>
<th>Iran</th>
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</thead>
<tbody>
<tr>
<td>Area (h)</td>
<td>96070</td>
<td>100140</td>
<td>5589550</td>
<td>5785760</td>
</tr>
<tr>
<td>Area (%)</td>
<td>1.66</td>
<td>1.73</td>
<td>96.7</td>
<td>100</td>
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<td>The number of maps produced</td>
<td>10</td>
<td>50</td>
<td>19</td>
<td>80</td>
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<tr>
<td>Species forming the type</td>
<td>Q. macranthera</td>
<td>Q. castaneifolia</td>
<td>Q. persica</td>
<td>8 species</td>
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<tr>
<td>The number of type</td>
<td>21</td>
<td>34</td>
<td>33</td>
<td>88</td>
</tr>
<tr>
<td>Variety of tree &amp; shrubs species</td>
<td>57</td>
<td>70</td>
<td>67</td>
<td>193</td>
</tr>
</tbody>
</table>

Table 2: Range elevation forests of oak and the main type.

<table>
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<tr>
<th>Habitat</th>
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<th>Maximum altitude</th>
<th>Main species in type</th>
<th>Minimum altitude</th>
<th>Maximum altitude</th>
</tr>
</thead>
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<tr>
<td></td>
<td>(m)</td>
<td>(m)</td>
<td></td>
<td>(m)</td>
<td>(m)</td>
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<td>Zagroos</td>
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<td>2400</td>
<td>Q. persica</td>
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<td>550</td>
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<td></td>
<td></td>
<td></td>
<td>Q. infectoria</td>
<td>1800</td>
<td>1300</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Q. libani</td>
<td>2100</td>
<td>1500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Q. magnusquamata</td>
<td>1900</td>
<td>1500</td>
</tr>
<tr>
<td>Hyrcanian</td>
<td>0</td>
<td>2500</td>
<td>Q. castaneifolia</td>
<td>2400</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>2500</td>
<td>1400</td>
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<td>Q. iberica</td>
<td>2300</td>
<td>1600</td>
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<tr>
<td>Arasbaran</td>
<td>500</td>
<td>2200</td>
<td>Q. komarovii</td>
<td>1700</td>
<td>500</td>
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<tr>
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<td></td>
<td></td>
<td>Q. macranthera</td>
<td>2200</td>
<td>1000</td>
</tr>
</tbody>
</table>

Fig 1. Geographic coordinates of oak Forest in Iran
Fig 2. Oak forest map

Fig 3. Altitude range of the main species of oak trees
Quercus Libani forest with 50–75% Canopy density (Kohdasht-Zagros)

Quercus persica forest with 25–75% Canopy density (Izeh-Zagros)

Quercus persica forest with 5–25% Canopy density (Yasoj-Zagros)